

The Works!™

PLATINUM EDITION

Five Integrated Programs In One Amiga® Computer Starter Kit



MSS
Micro-Systems Software

For The Amiga

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CHAPTER 1

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If you have questions about **THE WORKS! PLATINUM EDITION**, write or call:

Micro-Systems Technical Support Division
Suite 202
12798 W. Forest Hills Blvd.
West Palm Beach, Florida 33414
(407) 790-0772

Technical Support Advisors are available to answer your questions from 9am until 1pm and between 2pm and 5pm, Monday through Friday, Eastern Time.

When calling for technical support, please have your registration number, program name and version number available. **Micro-Systems Software reserves the right to refuse support for unregistered customers.**

Please return the enclosed registration card as soon as possible. As a registered owner of **THE WORKS! PLATINUM EDITION** you are entitled to technical support and notification of future upgrades.

TIPS FOR FASTER TECHNICAL SUPPORT

If you call for Technical Support, these tips will help you receive faster service:

- Have the registration number of the program, the version number of the program and the name of the program ready. These will be the first questions you will be asked. Prepare a description of your problem before you call and have your notes in front of you. Be concise.
- State the problem and let the Advisor ask about the equipment you have and the steps you have taken to solve the problem on your own.
- Have the person using the program and experiencing the problem call, not someone describing things second-hand.
- Have the program running and call from a location within reach of the computer.

Keep in mind, if you call the MSS Technical Support Division, the advisors may realize you **did not** read this manual and thus might refer you to the appropriate sections of the book. Reading the manual is important. It gives you a common language with which to discuss any problems you may have with a Technical Advisor. It might also eliminate the need to call for Technical Support.

BULLETIN BOARD SUPPORT

Micro-Systems Software maintains an electronic bulletin board 24 hours a day, 7 days a week. Our Technical Support Advisors are SysOps (System Operators) on the Headquarters BBS. You may call there to ask questions. The bulletin board supports 300, 1200, 2400 or 9600 bits per second and 7E1 or 8N1 parity/word length setting. The number is: (407) 790-0774.

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Notes

CHAPTER 2

INTRODUCTION

Congratulations on purchasing **THE WORKS! PLATINUM EDITION**, Micro-Systems Software's integrated productivity software for the Commodore Amiga personal computer.

PLATINUM WORKS! is a word processor, spreadsheet, database manager, telecommunications, and sideways printing utility program. It contains the most popular productivity applications for your computer.

ABOUT THE PACKAGE

The following items comprise **PLATINUM WORKS!** package:

- Three-Ring Binder
- Slipcase
- Registration Card
- Return/Repair Card
- Set of Indexing Tabs
- Manual Pages
- Disk Holder
- 3-Floppy Disks (3.5-inch Micro Diskettes)

Please assemble the manual in the following order:

- Open the Three-Ring Binder's rings
- Remove the Indexing Tabs
- Place the Return/Repair Card on the bottom
- Fill-out the Registration Card and separate it from its stub. Mail the Registration Card and place it's stub on top of the Repair/Repair Card. **This is very important. You must be registered and have the number on the stub available to receive technical support!**
- Place the Index pages on top of the Registration

Card stub and place the *Index* Indexing Tab on top of the Index pages

- Continue interleaving the various sections of the manual and the Indexing Tabs, placing them in order into the Three-Ring Binder
- On top of the *Table of Contents* Indexing Tab, place the Disk Holder
- Close the Three-Ring Binder and insert it in the Slipcase

ABOUT THIS MANUAL

The manual you have just assembled is divided into six sections and twenty-five chapters. It is arranged to help you learn how to use **PLATINUM WORKS!** quickly and easily.

- Section 1: Covers general information such as the License Agreement, Warranty and Copyright Notices; Duplicating the Master Disks, and Common Operations.
- Section 2: **PLATINUM WORKS!** Overview. These chapters explain the basics of each application.
- Section 3: Tutorials teach you the various features of each program. In these chapters, a Beginners Tutorial precedes an Advanced Tutorial for each application.
- Section 4: Section Four teaches how to use each special feature. Topics covered include MailMerge and Spelling Checking; Spreadsheet Graphics and Macros; and the Telecommunications Script language.
- Section 5: There are several Utility Programs included in **PLATINUM WORKS!**. These increase the flexibility of the package. These utilities are discussed in the Section Five Chapters.

- Section 6: The Quick Reference Guide. These chapters review all the menu items thoroughly. You will also find in this section specifications, the list of Mathematical Functions and the Glossary.

Once familiar with **PLATINUM WORKS!**, this manual will continue to be a valuable reference guide. To find information on different functions and commands, refer to the Table of Contents or Index for the page where you may find needed information quickly.

If you need additional help with **PLATINUM WORKS!**, contact Micro-Systems Software's Technical Support advisors who are always happy to answer your questions about our programs. However, they cannot walk you, step-by-step, through a program on the telephone.

Please turn to Chapter 3 to make copies of your master disks.

SYSTEM REQUIREMENTS

PLATINUM WORKS! requires a Commodore Amiga 500, 100, or 2000 computer. The computer must have a minimum of 512K random access memory (RAM) and a single floppy disk drive to operate. We strongly recommend 1-Meg of RAM (or more) and two floppy disk drives or 1-Meg of RAM (or more), one floppy disk drive and one hard disk drive. Kickstart and Workbench 1.2 or higher is required. The telecommunications module requires a modem.

PLATINUM WORKS! is compatible with most add-on Memory Expansion boards and hard disks that operate using AmigaDOS. The following items were tested at Micro-Systems Software:

Memory Expansion Boards

Alegra 1/2Mb
C-LTD 1Mb
COMSPEC 2Mb
Amiga 501
Amiga A2052

Hard Disk Drives

Byte-by-Byte Pal Jr.
C-LTD
Microforge 40Mb
SupraDrive 20Mb
Amiga 2090/ST-506

COPY PROTECTION

PLATINUM WORKS! is not copy-protected. Micro-Systems Software feels that quality software at a reasonable price is the best way to encourage people to purchase a program instead of "sharing" it. Giving away commercial software is **stealing** and may force us to change our prices and our views on copy-protection. Because of the lack of copy protection, you can make duplicate copies of the master disks.

CHAPTER 3

COPYING THE MASTER DISKS

THE WORKS! PLATINUM EDITION package contains three floppy disks, located in the disk holder. Please read the Micro-Systems Software License Agreement before breaking the seal on the package.

The disks are marked *Disk 1*, *Disk 2* and *Disk 3*¹. Disk 1 contains a modified 1.2 Workbench (it has some 1.3 files); Disk 2, the **PLATINUM_WORKS!** program and associated files; and Disk 3, utility programs and sample files. Make sure the write protect tab on each master disk is in the write protect mode. On the back of each disk is a black tab -- move it so the hole is visible and the tab aligns with the word *Inhibit*.

BOOTING THE COMPUTER

Now turn on your computer and insert Disk 1 when prompted for a Workbench diskette. If you haven't booted with Disk 1, please re-boot your computer by pressing both Amiga keys² and the Ctrl key simultaneously. Insert Disk 1 when your Amiga prompts you to insert a Workbench diskette. You would use another Workbench disk if you have a hard disk, see the Hard Disk Installation information, later in this Chapter.

The following sections describe how to make a duplicate copy of a **PLATINUM_WORKS!** diskette.

CAUTION

When you duplicate a disk, any information on the Target disk (the disk that will be the *copy* of the original disk), will be erased and

¹Disk 1 is named *Workbench*; Disk 2, *Platinum_Works!*; Disk 3, *Supplement*

²On some Amiga computers, the Left-Amiga key is designated the Commodore key.

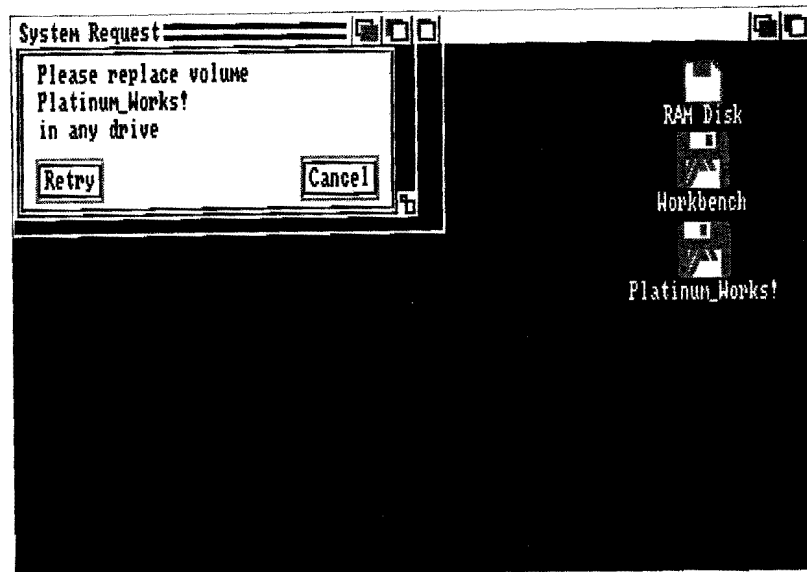
permanently lost. When you initialize a disk, any information on that disk will be erased and permanently lost. Use only blank disks or disks containing information that is no longer needed to make copies or data disks in the following sections.

DUPLICATING A DISK WITH ONE DRIVE

When the Workbench screen appears, remove Disk 1 and insert Disk 2 in the internal drive. Since Disk 1 contains just the Workbench, this section describes the duplication of your program disk.

Move the mouse pointer to the **PLATINUM_WORKS!** disk icon and click once. The disk's icon shutter moves from the right to the left.

Press and hold the right mouse button. A list of menus appear at the top of the screen. Move the mouse pointer to the *Workbench* menu item. When the pull-down menu appears, move the mouse pointer and highlight the word *Duplicate*. Release the right mouse button. The message *Please replace volume Workbench in any drive* appears. Remove Disk 2 and insert Disk 1. After a few moments of disk access you'll see the message *Please replace volume PLATINUM_WORKS! in any drive*. This requester displays:



Since the **PLATINUM_WORKS!** disk is already in drive 0, click the Continue gadget. The copying process begins and continues until you see the following message:



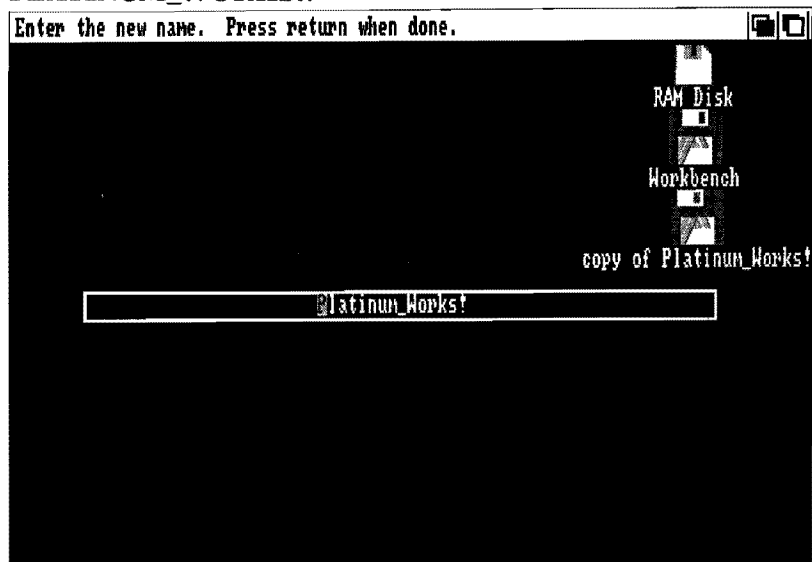
Wait until the red light on the disk drive goes out and replace the **PLATINUM_WORKS!** diskette with the disk you want to use for your duplicate copy. This copy disk will be erased, see the **CAUTION** section above. It doesn't matter whether this disk is blank or already formatted. **NEVER REMOVE A DISK WHILE THE RED DRIVE LIGHT IS ON!** Click the Continue gadget and the Amiga writes the information to the new disk.

This procedure continues several times, **FROM** one disk **TO** the other, until your Amiga duplicates the entire **PLATINUM_WORKS!** disk.

RENAMING DISKS

The new diskette's volume name is copy of **PLATINUM_WORKS!**. Click the disk icon and press the right mouse button. Move the pointer to the Workbench pull-down menu again. Highlight *Rename* and release the mouse.

A window with the new disk's volume name appears in the middle of the screen. Press the Del key until the cursor is on the "P" in **PLATINUM_WORKS!**.



This step is very important, since **PLATINUM_WORKS!** relies on the disk's volume name to locate its files. When your screen looks like the example, press Return. The disk's new volume name is under the icon.

Congratulations! You have successfully made a copy of **PLATINUM WORKS!** program disk.

We strongly advise you to repeat these steps for Disk 1 and Disk 3. You may use **PLATINUM WORKS!** with any Workbench disk, but if you want to use the one included with your package please duplicate it first. We cannot stress too often the importance of working with duplicate copies of the master disks. Master disks should be used for only one purpose: making duplicates.

After you've finished, file your master disks away in a safe place and re-boot the Amiga using the duplicate copies.

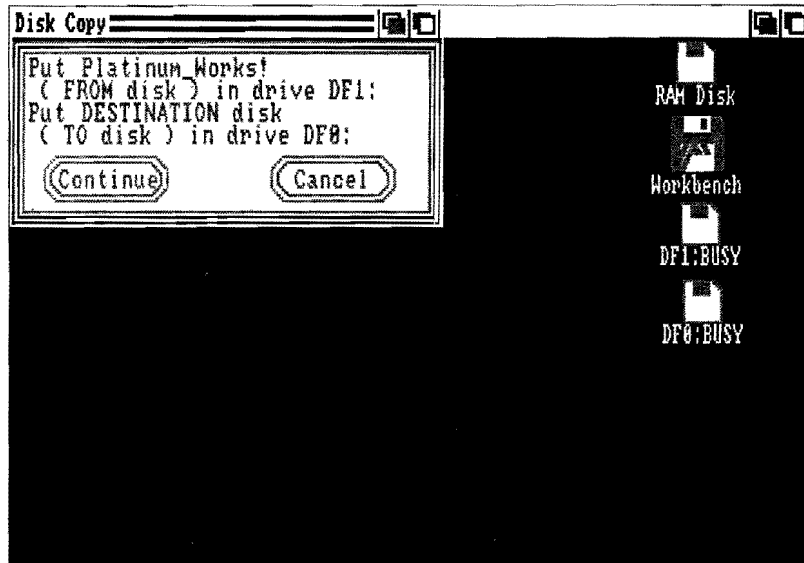
DUPLICATING DISKS WITH TWO DRIVES

Boot up your Amiga with Disk 1 and wait until the Workbench screen appears. Load the disk you wish to use for your duplicate copy into the external drive, it doesn't matter whether you use a blank disk or one already formatted. This copy disk will be erased, see the **CAUTION** section above. If it is an unformatted disk, a name like DF1:BAD may appear. If previously formatted, you will see the disk's volume name.

Remove Disk 1 and insert Disk 2. You should now see three disk icons on the Workbench screen. Click the **PLATINUM_WORKS!** disk icon and hold the left mouse button. Drag the mouse pointer to the disk icon for the destination disk. Attached to the mouse pointer is a "ghost" image of the **PLATINUM_WORKS!** disk icon.

Release the left mouse button when the **PLATINUM_WORKS!** disk icon is over the destination disk icon. The message *Please replace volume Workbench in any drive* appears. Remove Disk 2 and insert Disk 1. After a few moments of disk access you'll see the message *Please replace volume **PLATINUM_WORKS!** in any drive.* Do so

and a requester displays:



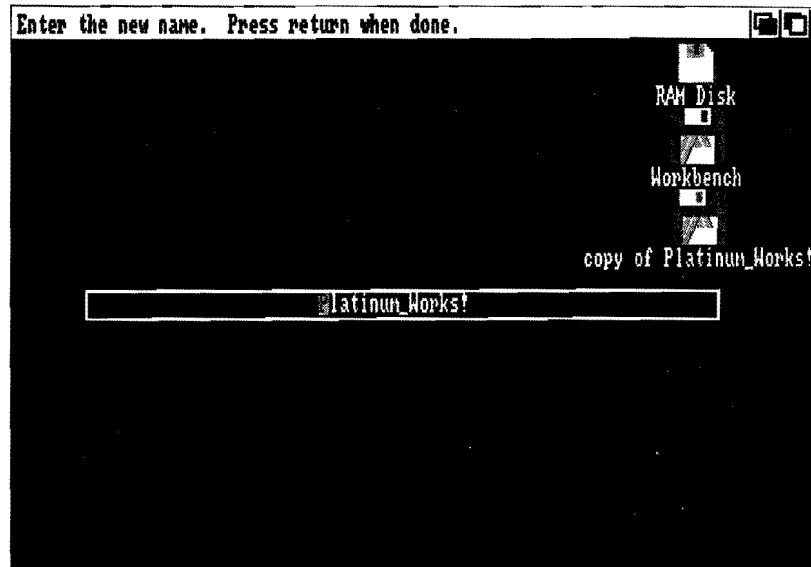
Since your **PLATINUM_WORKS!** disk is already in drive DF0: and your destination disk is in drive DF1:, click the Continue gadget. When the red disk drive lights go out, the copying process is complete.

NEVER REMOVE A DISK WHILE THE DRIVE LIGHT IS ON!

RENAMING DISKS

The new diskette's volume name is **copy of PLATINUM_WORKS!**. Click the disk icon and press the right mouse button. Move the pointer to the Workbench pull-down menu again. Highlight *Rename* and release the mouse.

A window with the new disk's volume name appears in the middle of the screen. Press the Del key until the cursor is on the "P" in **PLATINUM_WORKS!**.



This step is very important, since **PLATINUM_WORKS!** relies on the disk's volume name to locate its files. When your screen looks like the example, press Return. The disk's new volume name is under the icon.

Congratulations! You have successfully made a copy of **PLATINUM_WORKS!** program disk.

We strongly advise you to repeat these steps for Disk 1 and Disk 3. You may use **PLATINUM WORKS!** with any Workbench disk, but if you want to use the one included with your package please duplicate it first. We cannot stress too often the importance of working with duplicate copies of the master disks. Master disks should be used for only one purpose: making duplicates.

After you've finished, file your master disks away in a safe place and

re-boot the Amiga using the duplicate copies.

MAKING A DATA DISKETTE

It is recommended that you keep project files on a disk by themselves. This helps to prevent filling the **PLATINUM WORKS!** program disks too quickly. Follow these instructions when the tutorials refer to keeping project files on data disks. It is a good idea to format a box of disks when you buy them rather than making data disks individually as you need them.

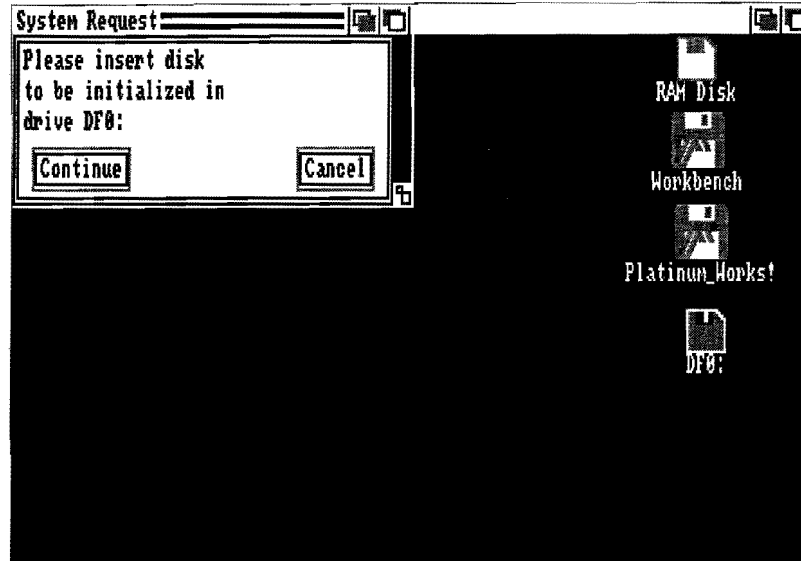
INITIALIZING A DATA DISK WITH ONE DRIVE

This data disk will be erased, see the **CAUTION** section above.

Remove the disk from your internal drive and insert a blank disk on which you will store your documents.

Click the disk icon once. The icon's shutter moves from the right to the left. Press the right mouse button and move the mouse pointer to the *Disk* pull-down menu. Highlight *Initialize* and release the mouse button.

Follow the instructions when prompted to swap the Workbench and the blank disk. If you initialize a previously formatted disk, your Amiga looks for the disk with that volume name. Otherwise, it prompts you to insert the disk to initialize and click the Continue gadget. This next requester appears. *This is your last chance to prevent any data on the disk from being irretrievably lost.*



Click the Ok gadget to continue or Cancel to abort. When Workbench finishes initializing the disk the volume name *Empty* appears below the disk icon.

Use the Rename function as you did before and rename the disk with the volume name *Data*.

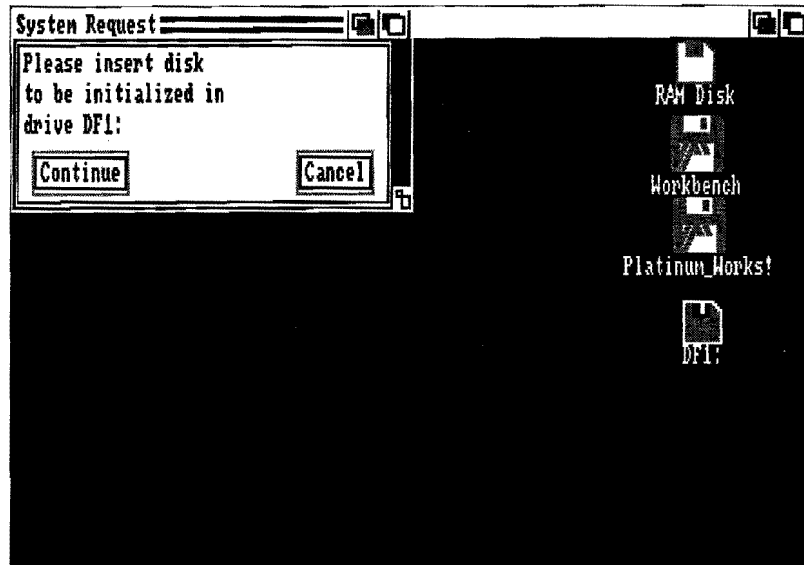
INITIALIZING A DATA DISK WITH TWO DRIVES

This data disk will be erased, see the **CAUTION** section above.

Remove the disk from your external drive and insert the blank disk to store your documents.

Click the disk icon once. The icon's shutter moves from the right to the left. Press the right mouse button and move the mouse pointer to the *Disk* pull-down menu. Highlight *Initialize* and release the mouse button.

If you initialize a previously formatted disk, your Amiga looks for the disk with that volume name. Otherwise, it prompts you to insert the disk to initialize and click Continue. This next requester appears. *This is your last chance to prevent the data on the disk from being irretrievably lost.*



Click the Ok gadget to continue or Cancel to abort. When Workbench finishes initializing the disk the volume name *Empty* appears below the disk icon.

Use the Rename function as you did before and rename the disk with the volume name *Data*.

Now, you have your master disks copied and a data disk ready to store documents. Please turn to the next Chapter to begin using **PLATINUM WORKS!**.

COPYING DISKS FROM CLI

To copy disks from the CLI with one disk drive, type:

:SYSTEM/DISKCOPY DF0: TO DF0:

and follow the prompts for inserting the disks. To copy disks from the CLI with two disk drives, type:

:SYSTEM/DISKCOPY DF0: TO DF1:

and follow the prompts for inserting the disks.

RENAMING DISKS FROM CLI

To rename a disk from the CLI, type:

RELABEL DRIVE DF0: NAME Workbench

and follow the prompts.

HARD DISK INSTALLATION

If you have not already done so, please boot the Amiga with your Hard Disk Workbench disk. When the Workbench screen appears, insert *Disk 1*. Double click on *Disk 1*'s icon and then double click on the *HD Install* icon. Follow the prompts and insert the disks as they are requested. During Hard Disk Installation, use **PLATINUM WORKS!** *Disk 1* when prompted for a Workbench disk instead of the disk with which you booted the Amiga.

The Hard Drive Installation copies various files from each of the **PLATINUM WORKS!** disks to your hard disk. It creates a drawer named *Works!* on your hard disk to which it copies many files.

The default hard disk device name is *DH0:*. If your hard drive is identified as *DH1:* or *JH0:*, load the *HD-Install* execute file into the wordprocessor and do a Find/Replace. Find all instances of *DH0:* and replace it with the volume name of your hard drive. If you have to change the *HD-Install* file, store the file as a text file without the *.doc* filename extension.

You must append the following ASSIGN command to the beginning of your *startup-sequence* (located in the *S* directory), **after** the BINDDRIVERS and MOUNT commands, but **before** the LOADWB command.

ASSIGN WORKS!: DH0:WORKS!

The command is necessary, otherwise the program cannot find its operating files.

SEARCH PATH

The program must see two path commands for it to find its applications modules on floppy disks:

**PATH ADD WORKBENCH:
PATH ADD PLATINUM_WORKS!:**

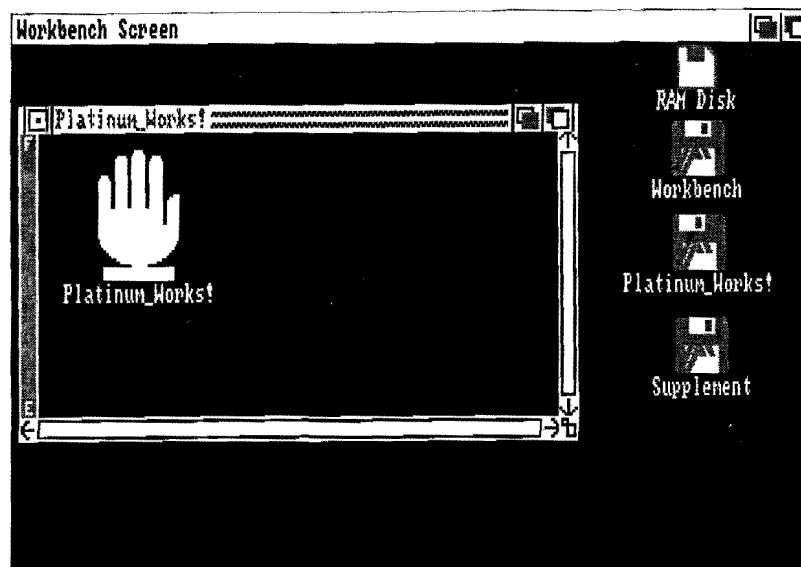
When looking for its dictionary and thesaurus files, the program will search in the directory to which *DICT:* has been assigned. If the logical device *DICT:* has not been assigned, the program will look for these files on the volume *Supplement:*.

CHAPTER 4

COMMON OPERATIONS

LOADING THE PROGRAM

If you have not already done so, please boot your Amiga with Disk 1. When the Workbench screen appears, insert Disk 2 which contains **PLATINUM_WORKS!** program. Double-click the **PLATINUM_WORKS!** disk icon.



There are several ways to load **THE WORKS! PLATINUM EDITION**. The easiest way is to double-click on the **PLATINUM_WORKS!** program icon. If you double-click a project icon, it loads the **PLATINUM WORKS!** application and that particular document, spreadsheet, terminal file or database.

You may also load the program from CLI. If a CLI window isn't present, double-click the System drawer and then the CLI icon. When the window appears, type **PLATINUM_WORKS!** and press Return. Optionally, enter the project name you want **PLATINUM WORKS!** to load from the command line. For instance:

PLATINUM_WORKS! df1:sales_ltr.doc

or

PLATINUM_WORKS! sheets:january/sales.sht

In the first example **PLATINUM WORKS!** looks on the disk in drive DF1: and opens the document named *sales_ltr.doc*. In the second example **PLATINUM WORKS!** searches for the disk with the volume name *sheets*. If the disk isn't present, your Amiga prompts you to insert it. **PLATINUM WORKS!** then searches in the sub-directory named *january* for the file named *sales.sht*. **NOTE:** The program and volume names contain an underline. It is important to include the underline when using CLI.

PLATINUM WORKS! is told which application to load by the file extension you supply as part of the project name. The following table shows the relationships between applications and extensions:

spreadsheets	.SHT
wordprocessor	.DOC
telecommunications	.TRM
database	.ENV

When **PLATINUM WORKS!** cannot find the project you entered it displays the message *File not found!*, on its main screen and waits for your next command.

Please load **PLATINUM_WORKS!** without a project icon. After a few moments of disk access you will see a custom screen. If you only have one disk drive your Amiga will prompt you to insert your boot disk in the internal drive. When the program completes loading, it automatically displays the *Project Open* requester (see File Requesters, later in this chapter).

PLATINUM WORKS! needs certain information found on the Workbench disk. From time to time, as you use **PLATINUM WORKS!**, a specific volume will be requested. Checking spelling is just one example.

LOADING AN APPLICATION OR UTILITY

Cancel the **PLATINUM WORKS!** File Requestor to reveal the main screen. The main screen has two menus, *Project* and *Utilities*.

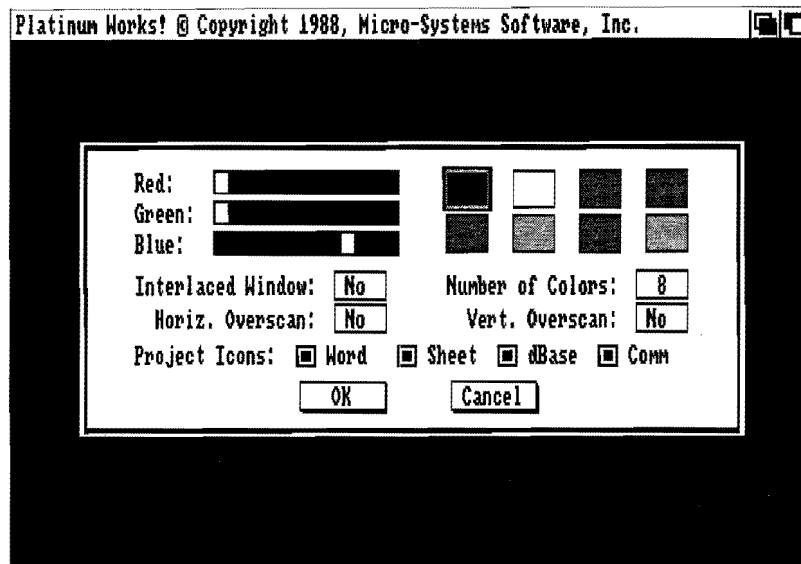
From the *Project* menu, you may select *Open*, or any of the applications. Selecting *Project Spreadsheet*, for example, will open a blank spreadsheet. *Project Open* will display a requester from which you can choose to load a project. The appropriate application will load when you select the project. (For details on the requester, see File Requesters later in this chapter.)

Any time the **PLATINUM WORKS!** screen is active, the requesters it displays will be full screen and forward. The requesters associated with a particular application window will always be displayed on that window and may be hidden behind a second window. If you encounter a sudden freeze in one application while you have another performing a specific task, the latter might be awaiting input or displaying an information requester you cannot see until you bring that application forward.

Each application has a *Project Works* menu item from which you can activate the main **Platinum Works!** screen. This is useful when starting another application or utility program. When you need to access the screen front/back gadgets, re-size the project window. To reactivate the application window, click anywhere in that window.

PROGRAM PREFERENCES

This item displays a requester to let you change the number of colors and default color settings, the type of window used, and whether an individual application creates project icons.



The three slide gadgets let you change any or all of the two, four or eight standard colors. Click the box which represents the color to change and move the slider gadgets. The color changes take effect immediately.

Red
Green
Blue

These gadgets change a particular screen color. This works the same as the Preferences tool found on Workbench, except these colors only affect **PLATINUM WORKS!**.

Click on either side of the bar or click and drag the bar with the mouse. As the bar moves the highlighted box changes color. Combinations of red, green and blue make up the colors which the Amiga can display. The default colors (left to right, top to bottom) are: Blue, white, black, green, magenta, cyan, red and yellow.

Interlaced Window

A normal project window can display 15 to 25 lines of text. This varies

considerably depending on the borders, titles, project window size and other factors. With an interlaced window you can display between 30 and 40 lines.

One drawback to an interlaced window is the display tends to shake. By adjusting your project window colors properly you can eliminate most of the jitter. Try using grey, black and white as the first (three) colors and you'll see an improvement. Polarizing filters that cover the screen also improve the interlaced display as do some electronic devices paired with multi-scan monitors.

Because of memory considerations (each interlaced window requires approximately 115k), interlaced windows do not appear until the program is loaded again. This is the only selection in Project Preferences which does not take place immediately.

Horizontal and Vertical Overscan

These gadgets indicate whether horizontal overscan or vertical overscan is active for the screen.

Project Icons

A series of boxes appear next to the abbreviated application names *Word*, *Sheet*, *dBase*, and *Comm*. When filled, these boxes indicate which application will create project icons. When the box is empty, no project icons will be created for that application. The default setting creates a project icon for each project. One advantage to using project icons is it lets you easily copy documents and spreadsheets from one disk to another. If you double-click on a project icon, the application is automatically loaded.

Once you have selected your Preferences click the OK gadget. This saves the changes in the file named **Platinum_Works!.prefs** and is read each time you load the program. To abort the current changes, click Cancel.

TITLE BARS

When you first load **PLATINUM WORKS!** the title bar displays the name **PLATINUM WORKS!**. This is the starting point for each of the applications. From this custom screen, the individual applications are loaded in separate windows.

After an application loads, an application title bar appears on the new window. It displays the *Project* name. The name in the **PLATINUM WORKS!** screen title bar displays the application name of the active window.

Title bars consist of close gadgets, text, menus and depth arrangement gadgets. The text identifies the project running in that window. The close gadget exits that program.

CUSTOM SCREENS

Custom Screens (screens that are not windows on the Workbench Screen) can use 2, 4 or 8 colors. Each custom screen has a separate title and menu bar with depth arrangers, just as has the Workbench Screen. Windows open on screens. Applications run in windows.

From a custom screen, click on the left arranger gadget to display the Workbench. To return to the custom screen, press Left-Amiga M and click on that screen to make it active. To return to the Workbench screen, you may also press Left-Amiga N then click within that screen to make it active. To return to the custom screen, press Left-Amiga M and click on that screen to make it active. Remember:

Left-Amiga N	Move Custom Screen TO BACK
Left-Amiga M	Move Custom Screen TO FRONT

When running multiple custom screens, the Left-Amiga M and N key combinations toggle between the Workbench screen and the front custom screen. The depth arrangers select which custom screen is the front custom screen.

WINDOW GADGETS

Scroll arrows

To view different parts of a project, use the scroll arrows found at the bottom of and the right side of each window.

Click the scroll arrows to move the display in small increments, in the direction of the arrow. Press and hold the left mouse button on the arrow to scroll continuously.

Scroll bar

To "page" through a project, click in the blank area next to the scroll bar. For example, click below the vertical scroll bar to move the display down one screen.

A third method lets you quickly move to any portion of the project. Point at the scroll bar, click and hold the left mouse button. Move the scroll bar to the approximate position in the project and release the mouse.

Screen depth arrangers

When you use more than one project window the screen depth arrangers let you switch from one window to another easily.

Click the left arranger to "push" a window to the back. To make a window active, either click the right arranger or click anywhere in the window. **PLATINUM WORKS!** automatically brings the active window to the front.

PLATINUM WORKS!'s menu bar also has screen depth arrangers since it uses a custom screen. Click on the left arranger to display the Workbench or next custom screen. You may also press Left-Amiga N then click to make that screen active. To return to the **PLATINUM WORKS!** screen, press Left-Amiga M and click.

Every Amiga program which uses a custom screen should have screen depth arrangers on the menu bar. Click the left screen depth arranger on the menu bar to switch custom screens.

Re-size gadget

This gadget lets you change the size of the project window. Click the gadget and the window border changes color. Hold the mouse button and move the mouse pointer. Move the pointer to where you want the bottom right-hand side of the window. Release the mouse button and the window is re-drawn to match the new border size. To move the location of the window, click on the title bar, drag the window border and release.

Close window gadget

Click the close window gadget to remove a project window.

SELECTING MENU ITEMS

To choose a menu item with the mouse press the right mouse button. The menu bar displays the following items (our example is from the wordprocessor):

Project Preferences Mode Document Print

Continue to press the right mouse button. Move the mouse pointer to the menu bar. When the mouse pointer touches one of the names on the menu bar, a pull-down menu displays below that name.

Now move the mouse pointer down the pull-down menu. As the pointer touches a menu item, it is highlighted. Some menu items contain menus of their own. These are known as pop-out menus. Move the mouse pointer to the right and down the pop-out menu to highlight one of these menu items. When the desired menu item is highlighted, release the right mouse button.

Some menu items have checkmarks next to the current selection. When you choose one of these menu items, **PLATINUM WORKS!** updates the checkmark on the menu.

Some menu items have a stylized A and a letter beside them. You can access these menu commands from the keyboard by pressing the key combination Right-Amiga key and the letter appearing next to the A on

the menu. For example, the *Project Quit* menu item has an *AQ* beside it. To quit the program, either select *Project Quit* with the mouse, or press and hold the *Right-Amiga* key, then press the *Q* key. When you release both keys, you will exit the program.¹

Choose multiple menu items by clicking the left mouse button as you highlight each menu selection you wish to execute. When you release the right mouse button the menu functions perform in that order.

The **HELP** key is a keyboard shortcut for selecting the *Project Info* menu item from any window.

FILE REQUESTERS

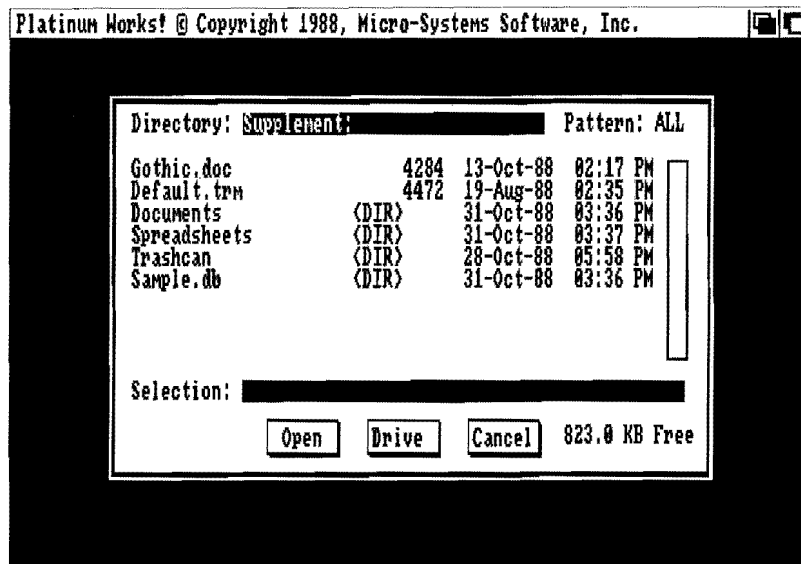
One of the most important things you must do when creating a document, spreadsheet or any project is to store it permanently on disk. This lets you retrieve it and either make changes or print it again.

Any project upon which you work, exists only in random access memory (RAM) while you work on it. When you turn off the computer or the power fails, everything in RAM is lost. For this reason, you need to save the project to disk.

PLATINUM WORKS!'s File Requesters lets you save, load or delete a project from disk.

Each File Requester has a similar appearance. An *Open File* Requester illustrates this description:

¹The spreadsheet has a different type of keyboard shortcuts. These shortcuts are explained in the spreadsheet chapters of this manual.



The top of the file requester displays the current volume/path beside the description, *Directory:* and the current *Pattern:*. The filename pattern is the dot extension which **PLATINUM WORKS!** will add (or append) to the filename you supply. This lets you easily distinguish different types of files. The file extensions are discussed in the chapters covering each application.

Below the directory input area is the list of files which end in the extension shown beside *Pattern:*. (There is one special "pattern", *ALL*, which represents the absence of an extension. When *ALL* is visible, the complete content of the directory will be displayed, regardless of dot extensions.)

Preceding the list of files is the parent gadget,

/ <DIR> 26-Oct-88 12:08 PM

which is used to move back one directory level.

Following the list of files, a list of sub-directory names appears. Sub-

directory names display in a different color (if more than two colors are used) and have the word *<DIR>* next to them. To the right of each file name appears the file size and the date and time the file was last saved.

Once the disk directory has been read, the list of files will be alphabetized and redisplayed.

Next to the filenames and sub-directories is the proportional scroll bar. Use this like the scroll bars in the project windows. The filenames scroll as you move the scroll bar.

Along the bottom of the requester are several gadgets. On the left is an action gadget. The *Drive* gadget is centered and on the right is the *Cancel* gadget.

The action gadget will be marked *Open*, *Load*, *Send*, *Save* or *Delete*, reflecting the purpose of the requester.

The *Drive* gadget conveniently switches the file display from one storage device (a hard drive partition, floppy drive or RAM: device) to another. If you only have one floppy drive, swap out floppy disks while **PLATINUM WORKS!** displays the files in the RAM: disk. The *Cancel* gadget returns to the program, aborting the action.

Next to the *Cancel* gadget is the amount of free disk space in kilobytes (KB) or megabytes (MB). This is used to keep track of dwindling disk space for a disk near its capacity. If you find yourself running out of disk space it is best to save the document on another disk.

When you double-click on a sub-directory name or the parent gadget, you will immediately begin listing the files (and directories, if any) in that directory.

Single-click on a file name will instantly place that filename in the *Selection:* area. Clicking then on the action gadget will perform that function. When you double-click on a file name, it will be loaded into the application as if you had single-clicked on the name and clicked on

the action gadget. If the files are in the process of listing when you double-click on a filename, the listing will abort and the file will load.

If you are using the *Open* File Requester from the **PLATINUM WORKS!** main menu, the *Pattern: ALL* gadget will only display files with the following extensions: .doc, .sht, .trm, and .env. The *Open* gadget will load the file and the appropriate application.

SAFE QUIT/SAFE ERASE

PLATINUM WORKS! will not allow you to *Quit* or *Erase* a project, if changes have been made to it since it was last saved, without specific confirmation that you do not wish to save those changes. A requester will be displayed that asks *Save changes to filename*. You can choose *Yes* to save the changes and *Erase* or *Quit*; *No* to discard the changes and *Erase* or *Quit*; or *Cancel* to abort the operation.

CLIPBOARD

PLATINUM WORKS! applications use the AmigaDOS *Clipboard* facility. This is a RAM and disk based temporary storage area. It allows you to duplicate, remove, and insert text (letters and numbers) both within an application and among different applications. This data sharing is one of the most powerful features of **PLATINUM WORKS!** and of computing. It reduces the repetition of typing the same information into different applications. For example, it gives you the ability to move a summary section from a spreadsheet into a sales report document.

The data must first be selected in the manner specific to the application being used. Once this data is chosen, *Cut* removes the data from your project and places it "on" the *Clipboard*; *Copy* (also called *Export* in some applications) makes a duplicate of the data "on" the *Clipboard*; and *Paste* (also called *Import* in some applications) duplicates the data that is "on" the *Clipboard* and includes it in your project at the point at which the cursor is located.

The specific data interchange formats vary. As a general rule, the format in which an application *exports* data is the one in which it expects to *import* data. However, some conversions are done during data import to bridge these formats and ease compatibility problems.

The database can only export *sequential data files* (also known as *MailMerge* files.) These are text files featuring field data surrounded by quotes and separated by commas. Records are separated with carriage returns. For example:

```
"Record1-Field1","Record1-Field2","Record1-Field3"¶  
"Record2-Field1","Record2-Field2","Record2-Field3"¶
```

When the database imports data, it will examine the file for several styles and create the records in the following way. This will be transparent to the user and will occur automatically. Any text that begins with a quote ("), comma (,) or two (or more) spaces () will be considered a field. If a comma has a number(s) on each side (10,000), it will treat the sequence as a field.

From the wordprocessor, this means that a paragraph is a record and that each quote, comma, or two or more spaces would force the text into the next field.

When the spreadsheet imports data, the first field (as defined above) is placed in the first column of the defined range. Each successive field is placed in the next column to the right. Each record is placed in a separate row with the first record placed in the first row of the defined range. Each successive record is placed in the row below the previous record.

The spreadsheet will export data as if it was printing the data. If a cell has insufficient width, and is filled with asterisks, those characters will be placed on the clipboard. In other words, the data will be exported exactly as it appears on screen.

PRINTING

Despite predictions of a "paperless society", computer applications

still must print data for you to distribute to others. The computer supports printers through its *AmigaDOS Preferences* tool. The right printer driver must be selected and several settings must be correctly adjusted to insure a pleasing appearance of your finished project.

The required settings have been made for you. Unless specific problems cause you to change them, leave these settings where they are. Problems with specific printer drivers (that is, features you know your printer has that are not working from **PLATINUM WORKS!**) should be directed to Commodore-Amiga Technical Support. The Preferences printer drivers are written, supplied and supported by Commodore-Amiga and not by Micro-Systems Software, Inc. or its Technical Support Division.

QUITTING THE PROGRAM

To exit **PLATINUM WORKS!** choose *Project Quit*. **THE WORKS! PLATINUM EDITION** checks any of the open project windows and gives you the opportunity to save your changes. If the project in the window was edited since the last Save, a requester prompts you to store the changes.

Click the *Yes* gadget to close the window and saves the changes with the name appearing in the requester.

Click *No* to close the window without saving any changes.

Click *Cancel* to abort the function and leave the project open. Please click the *No* gadget to prevent **PLATINUM WORKS!** from saving the changes made during tutorials.

Your Amiga returns to the screen from which you loaded **PLATINUM WORKS!:** either Workbench or CLI.

If memory runs low this requester will not appear. **PLATINUM WORKS!** automatically closes the window and saves your changes.

DELETING FILES

The *Project Delete* menu item will permanently remove a file from the disk. **Caution: Once deleted, a file cannot be recovered!!!** The *Project Delete* File Requester will always display when selected.

When the File Requester appears, you will see a list of files from the current default drive and directory. Once you click on the file you wish to delete, its name will appear in the *Selection* bar or box and you can click the mouse button on *Delete*. Double clicking on the file name will delete that file as if you had clicked on *Delete*. You will be prompted to confirm your intention to permanently delete the file.

The *Pattern:* gadget allows you to toggle among various file extensions and *ALL*.

Delete removes documents from the disk and automatically returns to the screen after deleting the selected file.

Drive selects the storage device from which the file will be deleted.

Cancel returns to the screen area (this is not needed after *Delete*).

BACKING UP DATA

One of the single most important activities is backing up data. It cannot be emphasized strongly enough that multiple copies of your important files should be made on separate disks. If you are working with a hard drive, this is also critical. For ease of making these backups, we advise you to use data disks for project storage.

The Micro-Systems Technical Support Staff cannot help you retrieve lost data. Your only insurance is multiple copies of important files. Once a disk is corrupted, in all probability, the data (or a portion of the data) on that disk is lost forever.

IMPORTANT

Some of the features described in this manual may not function fully with only 512k of RAM. Micro-Systems Software recommends a minimum of 1Mb of memory to take advantage of **PLATINUM WORKS!**'s capabilities.

If there is a topic you do not understand, look in Section Five, the *Quick Reference Guide*, for a complete explanation.

CHAPTER 5

WORDPROCESSOR OVERVIEW

THE WORKS! PLATINUM EDITION wordprocessor is a full featured word processing program that helps produce beautifully formatted documents. You can use the wordprocessor to write memos, letters, reports or create files used with the telecommunications program.

A word processor is not just a fancy electric typewriter. The real value of a word processor lies in the ease with which a document can be edited and reprinted. Because printing the document is a separate operation, you have the opportunity to make many modifications before committing it to paper. Once a document is "perfect", it can be reprinted again and again without further typing.

With a typewriter, you are forced to re-type the entire document, or at least the altered page, anytime changes are made.

It is an easy task to send the same basic letter to several persons, with each person receiving a slightly different, personalized, version. The basic letter is only typed once and the changes are placed in this shell each time it is printed. This can be a fully automated process involving hundreds of letters (using the MailMerge feature), or one done individually for a few letters.

One other strength of wordprocessing worthy of mention here, is electronic dictionaries. It is a significant step forward to have the computer match each word in a document against a list of correctly spelled words. This list of words can be supplemented to include words unique to your needs, with a user-dictionary.

If you are looking for specific information, the Reference section (Chapter 20) is a concise summary of all menu commands. For a tutorial on the advanced features of the wordprocessor, including the dot commands list, consult Chapter 9B. Beginners should start with

Chapter 9A and work their way through the exercises. There are also chapters covering two special features: Mail Merge and Spelling Check/Thesaurus. Finally, there is a special utility program, *Spellmate*, that allows you to maintain the user-dictionary.

Word processing may take some "getting used to"; but once you have mastered the basics, you'll wonder how you ever wrote without a computer. Remember one important fact: your computer is only a tool, just as is your typewriter. You can do very little to damage the computer short of borrowing the tools of a mechanical profession and physically abusing it. No operation described in this manual will damage the computer or its programs. The only destructive operation you will be called upon to perform, involves deleting files. For any destructive operation, the program you are using gives you ample warning. However, we always recommend making multiple copies of your important files.

CHAPTER 6

SPREADSHEET OVERVIEW

Electronic spreadsheets are the microcomputer version of the accountant's favorite tool: the ruled ledger book. Just as the pages of this ledger book are printed with a fixed grid of rows and columns, electronic spreadsheets are also divided into rows and columns. One advantage of the electronic spreadsheet is that the width of its columns is variable. This is an important difference.

The location where a row intersects with a column is called a cell. Each cell can contain values (numbers), labels (text), or formulas. Since each column has a letter (columns run vertically) and each row has a number (rows run horizontally), cells are identified by combining the column and row coordinate such as: A1, G10, and BB128.

The computer screen functions as a window over the actual spreadsheet; you can only see a part of the spreadsheet at any given time. As you move the cell pointer, or use the scroll bars located at the right and bottom of the window, the window also moves, displaying the different parts of the spreadsheet.

The cell pointer, a highlighted video bar, always displays the current cell. In addition, the cell address appears in the upper left hand corner of the window. The cell pointer is your most important tool when learning the spreadsheet. To operate the program, you position the cell pointer in specific cells and enter data or commands.

Sometimes you will want to address a group of cells at the same time because those cells are directly related to each other. A group of cells is called a cell "range". This subject is covered in detail later, because cell ranges are important when using a spreadsheet program.

The spreadsheet has several very powerful features. Among these features are its macro language. With the macro language, you can automate many functions, create custom menus, and simplify routine operations.

There are built-in mathematical functions (we call them "at functions") that help you create complex formulas. Included are such powerful functions as Net Present Value, Variance, and annuity Payment.

If you are looking for specific information, the Reference sections (Chapter 21 and 24) are a concise summary of all menu commands and the mathematical functions. Beginners should start with Chapter 10A and work their way through the exercises. For a tutorial on the advanced features of the spreadsheet consult Chapter 10B.

Bookkeeping on a computer may take some "getting used to"; but once you have mastered the basics, you'll wonder how you ever kept track of figures without a computer. Remember one important fact: your computer is only a tool, just as is your ledger. You can do very little to damage the computer short of borrowing the tools of a mechanical profession and physically abusing it. No operation described in this manual will damage the computer or its programs. The only destructive operation you will be called upon to perform, involves deleting files. For any destructive operation, the program you are using gives you ample warning. However, we always recommend making multiple copies of your important files.

CHAPTER 7

DATABASE MANAGER OVERVIEW

A database is a collection of related information that can be viewed in many ways, allowing you selective listings of the data stored on disk. This data can be anything from addresses for Christmas cards to recipes - plus much more.

For example, you can have names printed alphabetically by last name, first name or in ZIP code order. Recipes can be called up by name, food category or the time it takes to prepare.

In order to effectively use a database, you must be familiar with how they work. The greatest difficulty (other than deciding what type of information you're going to store) is how you will store it.

A database is made up of fields and records. Think of a database as a box filled with 3 X 5 cards, each containing the name and address of a friend or relative. A field would be a single item on that 3 X 5 card such as their firstname. A record would then be a single 3 X 5 card.

To display information in a particular order, you would sort on a field, otherwise known as Indexing. The database manager allows indexing in ascending (a,b,c...7,8,9) or descending (z,y,x...2,1,0) order. Indexing would be required if you wanted a mailing list printed in ZIP code order or alphabetically by last name.

The database manager allows reports to be sent to the screen, printer or a disk file. The program also supports as many reports as disk space will allow. Customized data entry screens (called Forms) permit rearrangement of the fields of a database so that data is input in a logical manner and the output format is easy to read and presented in a professional manner. Conditions can be part of a report to allow a listing of all names that begin with "J" but not "Jones".

Another powerful feature of the database manager is "Project" icons.

Using Projects, you can automatically open a database, load a particular Form and open a specific index - just by selecting the correct Project icon. All Search and Report criteria are stored along with each Project, allowing quick and easy access to the database manager, bypassing many time-consuming and repetitive tasks.

The tutorials are important even if you do not need the type of database shown. You will be able to learn quite a bit about how the database manager works when you follow these exercises. This knowledge will be helpful when you create your own databases.

Beginners will benefit by following the examples in Chapters 11A through 11E. Once familiar with the program, Chapter 22 contains useful reference information. To complete the usefulness of the program, the dbMerge utility program is explained in Chapter 18.

Keeping your phone book or company inventory on a computer may take some "getting used to"; but once you have mastered the basics, you'll wonder how you ever kept track of information without a computer. Remember one important fact: your computer is only a tool, just as is your RolodexTM. You can do very little to damage the computer short of borrowing the tools of a mechanical profession and physically abusing it. No operation described in this manual will damage the computer or its programs. The only destructive operation you will be called upon to perform, involves deleting files. For any destructive operation, the program you are using gives you ample warning. However, we always recommend making multiple copies of your important files.

CHAPTER 8

TELECOMMUNICATIONS OVERVIEW

THE WORKS! PLATINUM EDITION contains a sophisticated telecommunications package for the Commodore Amiga computer. Topics covered in the manual include: Terminal emulation, file transfers, reviewing your sessions and using Script files to automate telecommunications sessions.

Through telecommunications, you have access to a whole new world. Now you are only a phone call away from mainframes and databases, news and financial information providers, telex and electronic mail services. Aside from commercial services, thousands of privately owned electronic bulletin board systems are available where users may contact each other for help.

Many useful programs are available for the price of a phone call. These Public Domain and Shareware programs rival commercially produced programs for quality, but fill needs and applications that could not be made profitable on a commercial basis.

One of the most useful aspects of telecommunications, particularly for new computer users, is the technical support that is available in electronic conferences and from open forums. On so many commercial and private "BBS's", novices can ask questions of experts about computers and programs as well as about a variety of other topics. Micro-Systems Software operates such a BBS. See Chapter 1 for more information.

In this manual, you will be taken step-by-step through the process of using the program. Both beginners and experienced users will benefit by following the examples in Chapter 12A. Once familiar with the telecommunications program, Chapter 12B contains useful information on learning and mastering the world of telecommunications. For reference, consult Chapter 23. Finally, details of the Script language are provided in Chapter 15A and Sadie Protocol in Chapter 15B.

Telecommunicating on a computer may take some "getting used to"; but once you have mastered the basics, you'll wonder how you ever gathered information without a computer. Remember one important fact: your computer is only a tool, just as is your telephone. You can do very little to damage the computer short of borrowing the tools of a mechanical profession and physically abusing it. No operation described in this manual will damage the computer or its programs. The only destructive operation you will be called upon to perform, involves deleting files. For any destructive operation, the program you are using gives you ample warning. However, we always recommend making multiple copies of your important files.

CHAPTER 9A

WORDPROCESSOR BEGINNER'S TUTORIAL

If you're new to word processing, take time to read through the Overview section. Its purpose is to help you become familiar with phrases like *word wrap* and *text justification*. Many ideas are explained here with which other sections assume you are familiar.

More experienced users may find they can skip to the Advanced Tutorial and Reference sections (Chapters 9B and 20).

The Reference Section is designed to explain the various menu items in each program, one command at a time. Should you encounter difficulty with a menu item's function, it is this guide that should be your reference for quick information.

Other sections of this manual important to wordprocessing discuss MailMerge and Spelling Checker/Thesaurus (Chapters 13 A and B) and Spellmate (Chapter 17).

STARTING THE PROGRAM

If you are running **THE WORKS! PLATINUM EDITION** from Workbench, all you need to do to start the wordprocessor is double-click the left mouse button while pointing to the icon named *PLATINUM_WORKS!*, then, select the wordprocessor program from the menu. Or, double-click on a document project icon.

Should you decide to run the program from CLI, the procedure is equally simple. Type the name of the program at the CLI prompt, *PLATINUM_WORKS!*, and press RETURN. Select *Project Wordprocessor*. Or, follow the program name with a filename to have the program load a document and the wordprocessor.

Any way you choose to start the program, the result will be the same.

The wordprocessor will boot up and present you with a blank screen and a title bar. This is called an *edit window*, because this is the window in which you will enter and edit text. This initial window is your primary edit window.

The wordprocessor is capable of letting you open more than one window on the display at the same time. With this option, you can edit more than one document at a time (a process discussed in detail later in the manual.)

Once the initial window is open, you can begin entering text.

WORD PROCESSING

Word processing has four phases: writing, storing, editing and printing. Printing your finished document is the end result, but it is almost secondary to the program. Once you begin printing, your interaction with the wordprocessor is over. It is during the writing and editing of a document that you will use the program.

Word processors help reduce some common frustrations of business correspondence. You may think that because business letters don't often go through extensive periods of editing and reprinting, a word processor is not much of an improvement over a typewriter. This is not the case.

A lot of times, you may decide to change one word or sentence, or perhaps add something to a quotation. With a typewriter, you must retype the entire letter. With the word processor, you simply load the document back into the computer's memory, make the change, and print another copy. The parts of the letter that did not change will not have to be retyped.

Something else a word processor will help your business correspondence with is filing. In many offices, either carbon copies or photocopies are stored in filing cabinets. Finding a specific letter later can take much time. With a word processor, your original letters are stored on diskette, with one diskette holding hundreds of letters (a great space savings over filing cabinets).

We'll cover the four phases of word processing. Writing, storing, printing, and editing.

To assist in both the writing and editing phases, a Spelling Checker and Thesaurus are included. The Spelling Checker can be used manually, automatically, or as you type. The Thesaurus will suggest a list of words --with definitions-- for any word you highlight. See Chapter 13B for details on this convenient features.

WRITING

To begin writing a document, all you need to do is start the program and begin typing (Refer to *Starting the Program* above). As you type, the characters appear on the computer's display. As they appear on the display, they are stored in the computer's memory. Later, you can store the document from the computer's memory to a diskette, thus creating a permanent record.

Please start the program (if it is not already running). It will help you understand this tutorial if you work with the program. While reading the next paragraph, type a sentence to see "word wrap".

Type in the following paragraph:

I will soon be familiar with this portion of **PLATINUM WORKS!** and wordprocessing. My habit of pressing Return at the end of a line will soon be replaced with my use of this key only to end paragraphs. I am seeing how word wrap works and how this helps to preserve formatting when an edit is made to my document.

As you type, watch what happens when you approach the right hand margin of the display. Eventually, the word you are typing will no longer fit in the space provided for that line, so the wordprocessor will move the partially typed word down to the next line, along with your cursor. This is called *word wrap*, and is an important part of word processing. Press the Shift key and hold it, then press F-9. This will turn on the carriage return markers (¶). These show where Return was

pressed. Or, choose *Preferences Markers Show*.

With a typewriter, you press Return on each line, deciding manually where each line will end. Some typewriters have a keystroke memory. One use of this feature has the typewriter print a line of text *justified* against the right hand margin of the document. The printed document ends up with "smooth" margins on both the left and right sides, as opposed to "ragged", where the text is not flush against the right margin.

With a typewriter, you decide where each line ends. We all make mistakes and you may decide to end a line when the next word you were going to type would have fit. The resulting line will have fewer words on it then could fit. This wastes space.

With the wordprocessor, you simply type and let the program decide when to wrap the word down to the next line. With this procedure, you can be sure the maximum amount of text that can possibly fit on a line, will fit. In addition, since the line has not ended with a carriage Return, you may decide to alter your margins later, thus resulting in the wordprocessor reformatting your text to accommodate the new line length.

You could press Return to manually end a line and probably will have to under certain circumstances, like at the end of a paragraph or to create a blank line. A blank line in the text is what you get when pressing Return while the cursor is in the first column of a line. There is the special case of creating columnar reports or other tabular output, where you need to have a series of short lines with manual control over where they end. For example, in order to create the following table, Return had to be pressed at the end of each line.

Product Sold	Profit
100	\$10.00
200	\$17.00
300	\$24.00

Typing the paragraph you're reading right now was simple, for Return

was never pressed. This paragraph let the word processor wrap the words and justify the output (notice the even right hand margin). If you're following along on your own, you may have typed in some text to watch the word wrap work in the suggested familiarization procedure.

Please type a couple of words and then press Return. You should see the paragraph marker appear where you pressed Return. This shows you that the line has ended manually at that position, because *you* forced it to by pressing Return.

If the carriage return symbols (§) are annoying or complicate matters, select *Preferences Markers Hide* or simply press the Shift and F9 keys simultaneously to remove them. Do this now.

You will no longer see the carriage return symbols on screen, but that doesn't mean they are not there. Every time you hit a carriage return, you will receive the same result as when you were able to see them. Take a few moments to familiarize yourself with the Shift F9 option.

TEXT ENTRY MODES

An important element of writing with a word processor is the current *text entry mode*. The wordprocessor offers two modes, **Insert** and **Overwrite**. Each affects the manner in which the program acts when you type while the cursor is positioned over some existing text. Most persons gravitate towards one method or the other, and leave the wordprocessor in that mode 99% of the time. In specific applications, each mode has its advantage. First, the Insert mode.

INSERT MODE

When the wordprocessor is in the *Insert* mode, you can type while the cursor is positioned over some existing text and never erase the original word. The new characters you type move the existing text to the right as new text appears at the cursor position. The new text is "inserted" into the old. If you press the Return key, a carriage Return will be inserted into the text at the current cursor position, without replacing

the characters that were there originally and an insert line is opens, where you may enter new text.

You may toggle between the *Insert* and *Overwrite* modes by selecting *Preferences Editing Mode Insert* or *Overtyp*; or by pressing the *Left-Alt* and *I* keys simultaneously. When you are in the *Insert* mode, the letters *Ins* will appear in the status line at the bottom right hand corner of the screen. The absence of these letters show that you are in the *Overwrite* mode.

OVERWRITE MODE

In the *Overwrite* mode, if you type while the cursor is positioned over some existing text, the new characters will replace the original characters, thus erasing the original characters. If you should press the Return key, a carriage Return is inserted into the text at the current cursor position, replacing the character over which the cursor was positioned. An insert line is opened in the text, where you may enter new text. The new text overwrites the old.

Please test these two modes for yourself. Each has their place and are useful. You'll see how they work together as we discuss simple editing, below.

EDITING

There are two kinds of editing you will do with a word processor. We'll call the first **text** editing. This happens when you are writing a document with your word processor and notice that you have mis-typed a word. The other, which we'll call **style** editing, involves special commands that can make text bold or underlined. There will be more on style editing later.

Text editing involves correcting typographical mistakes or altering the content of a document. If you spot a mistake, the method you use to correct it depends on what type of mistake it is and where it occurs. Typical typographical errors include:

1. Typing double or extra characters.
2. Omitting a character or characters.
3. Typing the wrong character.
4. Omitting a complete word or words.

If you typed *How are you Esther Appleman?* and you purposely mis-type the word *Esther* as *Easter*, all you need to do is backspace to the *E* and type *sther*. (Typing the Backspace key on the Amiga keyboard will tell the wordprocessor to move the cursor one position to the left and erase the character previously there.)

Now let's say that you mis-type the word as *WEsther*. Backspacing now means that you would erase the entire word and have to retype it. This is not an efficient way to use the wordprocessor. The purpose of a computer and of word processing is speed and convenience.

What you do in this case is use the LEFT ARROW instead of the backspace key. This moves the cursor to the left without erasing what it passes over. When the cursor is over the top of the *W*, press the Del key once. Now, use the Right arrow key to move back to where you were typing on the line and continue with your work.

Let's say that you mis-type the word as *Ester*. In this case, you do not want to REMOVE a character, you want to INSERT one. To remedy the problem, you would enter the insert mode, if it is not already engaged, by pressing Left-Amiga I. Then, move the cursor with the arrow keys until it is over the *e* in the misspelled word and type an *h*. The rest of the word will move over to make room for the *h* and you will be left with a perfect *Esther*.

Inserting more than a few characters in this manner can become slow as the program wraps words to make room for your new text. To combat this, the wordprocessor will allow you to open an *insert block* by pressing the F10 key. When you press the F10 key, the text from the current cursor position to the end of the current line on the screen will be moved down to the next line, and you will have plenty of room in which to insert your new text. As you use up the space on each line, a new line will be opened for you. When you have completed your

insertion, type F10 again to close the block and restore the text to normal.

It is time to experiment with these two modes now. Move the cursor with the arrow keys until it is over some of the text you have typed. Type some new text while in the Overwrite mode and while in the Insert mode. Observe the different ways the wordprocessor treats the text underneath the cursor while you type.

Please try the special keys we mentioned, Del and F10. Press Del while the cursor is positioned over some text. You should notice it removed the character the cursor was on and moved the character to the right of the cursor one position to the left. Please type F10. Notice the INS (insert) block open. Type something and press F10 again. You can see the text close.

CURSOR MOVEMENT FROM THE KEYBOARD

By now you should be familiar with the basic skills of writing with a word processor. You've already learned word wrap, using the Return key to force the end of a line, and about correcting your mistakes with the **Insert** and **Overwrite** modes. The next step to help you use the wordprocessor effectively is learning to move the cursor around the document quickly.

The primary keyboard cursor positioning controls are the cluster of arrow keys located on the lower right hand portion of the keyboard. These keys move the cursor one character or line in a specified direction. So, if you press the left arrow, the wordprocessor will move the cursor one character to the left. If you press the right arrow, one character will move to the right. The up and down arrows move the cursor one line up or one line down.

Holding down the Shift and Alt keys while pressing the arrow keys tells the wordprocessor to magnify the scope of the cursor movement. Refer to the following definitions for the Shift and Alt keys:

KEY COMBINATION	ACTION
Left Arrow	Moves cursor one character left
Right Arrow	Moves cursor one character right
Up Arrow	Moves cursor up one line
Down Arrow	Moves cursor down one line
Shift-Left Arrow	Moves cursor to the first character of the line
Shift-Right Arrow	Moves cursor to the last character of the line
Shift-Up Arrow	Displays the previous video "page"
Shift-Down Arrow	Displays the next video "page"
Alt-Left Arrow	Moves cursor to the first character of the document
Alt-Right Arrow	Moves cursor to the space following the last character of the document
Alt-Up Arrow	Moves cursor to the first line in the window
Alt-Down arrow	Moves cursor to the last line in the window

*532
READ ME FIRST
FROM
FOR NEW*

In addition to the arrow keys, certain other keys have been assigned to the task of cursor movement. These all make use of the Ctrl key. This key is located on the left hand side of the keyboard, just above the Shift key. As with Shift and Alt when you pressed them simultaneously with the arrows, you will do the same with the Ctrl key and another key. Some additional Ctrl combinations are also presented.

KEY COMBINATION	ACTION
Ctrl A	Moves cursor to the first character of the previous word on the current line
Ctrl C	Moves the cursor down one page
Ctrl D	Moves cursor one character right
Ctrl E	Moves cursor one line up
Ctrl F	Moves cursor to the first character of the next word on the current line
Ctrl R	Moves the cursor up one page

Ctrl S	Moves cursor one character left
Ctrl X	Moves cursor one line down
Ctrl G	Deletes one character
Ctrl L	Search again
Ctrl T	Deletes one word
Ctrl Y	Deletes one line

CURSOR MOVEMENT WITH THE MOUSE

You are now familiar with the cursor movement keyboard commands. How to operate the wordprocessor with a mouse is next.

Take a look at the mouse pointer on your screen. It should look like a pencil. In the Text Edit mode, when you point to an area in the window and click the left mouse button, the wordprocessor will immediately put the cursor there. Experiment with this for a few minutes. Move the mouse pointer around, inside the edit window, and click the left button. You should see the cursor following your movements.

THE STATUS LINE

Earlier in this section, we made reference to the status line appearing at the bottom of your screen. This display is very important.

Pg: 1 Ln: 1 Col: 1 Mode: Edit Ins BUI

The above diagram represents the status line, and will help in the explanation of its purpose.

PAGE The first item in the status line is the **current page number**. When you tell the wordprocessor how long your lines are and how many of them will fit on a page, it tells you where the current line is in the document. The "current line" is the line on which the cursor is positioned. As you move through the text, this indicator will

change, informing when you have entered a new page.

LINE The next item in the status line is the **line number** of the current page. The number of lines per page is calculated as Page Length minus the Top and Bottom Margins.

COLUMN Next is the **column indicator**. This tells you what column of the current line the cursor is located on. This is useful when your line length is greater than the size of the window and the program is scrolling the display horizontally.

MODE After the column number indicator is the **mode indicator**. When you power up the program, the wordprocessor is in *Edit* mode, which is where you enter and edit text. Other modes include *Copy*, *Cut*, *Paste* and *Style*. These are all part of the advanced editing features of the wordprocessor, and will be discussed later. As you choose these modes, the mouse pointer changes shape. If you are in the *Cut* mode, the pointer will look like a scissor instead of a pencil as it appears in the *Edit* mode. The *Copy* pointer resembles a camera; the *Paste* pointer, a glue bottle; and the *Style* pointer, a paint roller. Since interpreting some of the pointer shapes may be difficult at first, the wordprocessor gives you additional help with the *Mode* indicator.

To the right of the *Mode* indicator are four status indicators. These reflect the mode in which the program is operating. The first of these is the phrase *Ins*. This appears when the program is in the *Insert* mode, and is not present when the program is in the *Overwrite* mode.

Following *Ins* are the letters *B*, *U*, and *I*. These tell you when you

have engaged one of the special character formats such as **Boldface**, Underline, or *Italic*. These can be turned on or off while you are typing by pressing one of the following function keys:

F6 **Boldface**
F7 Underline
F8 *Italic*

When the letter appears, that mode is active. For example, if the letter U is showing, you will type underlined text. If the letters B and U are both showing, any text you type will be **boldfaced and underlined**.

Now that you are a bit more familiar with the various elements of the status line, you may feel the need to experiment with it. To do so, move the cursor around in your edit window. You should see the *Line* and *Column* indicators changing on the bottom of your screen. Press Left-Arrow. Then press it a second time. You should notice the *Ins* appear and disappear.

Press function keys 6, 7, and 8. The indicators should light up. Turn on **boldface** and type some text. Now add underline and type some more text. It should appear that way on the screen. If not, make sure you pressed the correct keys and check the indicators on the bottom of your screen. They should always indicate the current status of the wordprocessor.

STORING A DOCUMENT

You should have learned enough about the wordprocessor to create a simple document. If you have been following this tutorial, then you have at least one paragraph on screen. Please add the following lines:

I am creating a sample document with my new word processor. Although somewhat overwhelmed at first, I am now at ease, for I have been following the familiarization exercises explicitly. In no time at all, I am going to be making productive use of this software.

Once you've finished typing this text, you are ready to select the *Project Save* command and store your text to disk. Use the mouse to select this menu item or press Right-Amiga S.

When the File Requester appears, the *Selection:* input area is preselected (the cursor is already there.) Type in *SAMPLE* and press Return. The next step is to click on the *Save* gadget or type the letter S. The disk drive light comes on and the file is written to the disk.

ERASING THE WINDOW

Once the file has been stored, we are ready to start on the next document. To begin our next project, we want to remove from memory the document with which we are finished. Remember that we have saved this document to disk and will be able to retrieve it whenever we need to revise or print it.

From the *Project* menu, select *Close*. If you have not saved the document, a requester will appear to confirm that you really want to remove the document from memory without saving. The three options available from this requester are *CANCEL*, *YES* and *NO*. If you have saved the document (or after you have told the program you do not want to save the document), a requester will be displayed prompting you to change the *Default Window Size* (which is set for 16K.) If this is enough memory to hold the document on which you plan to work, click *OK*. If you plan on working on a document that will be larger than 16K, use the *Backspace* key to change the value in this requester to an appropriate value and click *OK*.

The document will be removed from the screen and from memory while the title bar changes from *SAMPLE.doc* to *Untitled*.

STYLING A DOCUMENT

In this portion of the familiarization procedure, we'll spend some time discussing the style editing features such as centering a line and changing the attributes of some existing text (boldface, underline,

etc.). Earlier, we talked about changing the style of text while you were typing it, and now we'll discuss how to apply style to text already in the computer's memory.

Before we get started with this, you need to load a sample document from the *Supplement* diskette. Select *Project Open*. When the File Requester appears this time, double click on the document name *HERMAN.doc*. You could also single click on this document name and click on the OPEN gadget. This is a document which was prepared specifically for this example.

The document will be loaded into the computer's memory. The wordprocessor will return to the edit window displaying *HERMAN.doc*. You will be in Text Edit mode.

CENTERING TEXT

If the cursor is not located over the top line of the document (which holds the word *MEMORANDUM*), move it there. Alt-Up Arrow is a fast way to do this. Once the cursor is there, press the F3 function key. The line should have moved to the center of the screen.

Notice how the end of line marker (formerly the paragraph symbol) following the word *MEMORANDUM* has changed into a *cents* symbol. This is the wordprocessor's way of telling you that it has centered the line and you did not do it manually by tabbing or spacing over. Press F3 function a second time. See how the line moves back to the left? Press F3 a third time. Is the line centered again? Good. You could never un-center so easily a line that you centered manually with spaces.

Whenever you press the F3 function key, the wordprocessor will center the current line (the line on which the cursor is located). If you want to center a line while you're writing a document, type the line FIRST and THEN press the F3 function key. (Pressing the F3 key on an empty line will have no effect.)

STYLING TEXT WITH THE MOUSE

Now let's style some text. Move the cursor down through the document until it is positioned over the word *real* in the last sentence of the second paragraph (...*says there is a real motivation...*). Select *Mode Style Underline*. Instantly, your mouse pointer should change to look like a paint brush. (If you're not sure about this, check the "Mode" indicator in the status line, which should now read *Style* and *U*.) Now tell the wordprocessor what text you want to underline.

Move the mouse pointer to the first letter in the word *real*. Press and HOLD the left mouse button. As you move the mouse to the right (towards the end of the word) it will not only turn into a paint roller, but will "drag" the cursor with it, and the text it passes over will highlight.

If you make a mistake, such as not starting at the correct spot, you can abort the highlighting by moving the mouse pointer off the edit window to the left hand or top borders. This instantly aborts the styling and you can release the left mouse button. (Moving the mouse point off the edit window to the right hand or bottom borders is legal and will not affect your highlighting procedure.)

Don't be concerned if while you are highlighting, you move the mouse pointer up or down a line and a lot of text gets highlighted. *As long as the starting point is correct, you can move the pointer back on to the current line with no ill effects.*

When the mouse pointer is over the last letter in the word *real*, the entire word should be highlighted. Release the left mouse button and the wordprocessor will underline the word.

STYLING TEXT FROM THE KEYBOARD

You can also accomplish the same task without using the mouse. You can use keyboard commands to highlight the text, scrolling the edit window with the paint roller.

You still need to select *Mode Style* and define what type of styling you want with the mouse. Once the *Style* mode is engaged, you can use the keyboard for the rest. Just position the cursor, using the normal method, to the first character of the text you want to style (in our example, the first letter in the word *real*.) Now press the F9 function key. This "anchors" the cursor.

When you move the cursor now, again using the normal cursor movement keys, it will expand instead of moving. For example, after pressing F9 with the cursor over the *r* in *real*, pressing the right arrow would leave the letters *r* and *e* highlighted. You should continue to move the cursor until all the text is highlighted and then press Return. The wordprocessor will perform the task, in this case, styling the text that you highlighted.

Here's a tip for you. The fastest way to style an entire document is to select the style you want to apply, press the Alt-Up Arrow keys simultaneously to go to the top of the document, and scroll the entire document with the paint roller.

You see, when you get to the bottom of the screen with the roller, it just continues to the next page. Should there come a time when you want to remove all styling in a document, this method will come in handy, for you can apply the PLAIN style to an entire document easily.

MULTIPLE STYLES AND REMOVING STYLES

If you've been following the Exercises, your style option should already be set for *Underline*. We're going to add a second option and show how to add multiple styles in a single movement.

Return to the wordprocessor menus and once again select *Mode Style*. This time, notice how the check mark has moved from *Plain* to *Underline*. This tells you that the *Style* mode is now underlining text. Move the mouse pointer until the word *Bold* is also highlighted and

release the right mouse button. You've just told the wordprocessor to add another style besides underline. Now, when we apply this style to the text, it will both underlined and boldfaced.

To see what effect this has on the menu display, bring up the *Mode Style* pop-out menu again. Notice how the check marks are beside *Underline* and *Bold*? Move the mouse well off the menus so that no commands are highlighted and release the right button.

Let's apply this to some text. Move the mouse so that it is pointing to the first letter in the word "results" in the third paragraph (...--*only results*...). Press and hold the left mouse button. Move the mouse until the entire word is highlighted and release the left mouse button. Do you see how the word results is now underlined AND boldfaced?

(NOTE: If this is not what happened when you highlighted the word, check the *Mode Style* pop out menu again. It is possible that you accidentally selected one of the other styles when examining the menu last time.)

Removing a style is just as easy. Go back to the *Mode Style* menu and highlight the *Plain* option. Release the right mouse button. Now, if you should display the *Mode Style* menu again, only one check mark will be present. The *Plain* style is exclusive of all others. When it is active, none of the others can be.

Highlight the word *results*. When you apply *Plain* style to styled text (and the text in the surrounding area is not styled) you do not need to be careful about highlighting. It does not hurt to apply the *Plain* style to text that is already plain.

After you highlight the word *results* and release the left mouse button, the previous bold and underline style should have disappeared. You can apply and remove the special character formatting at will. Use the F6, F7, and F8 keys while you're typing, or use the *Mode Style* command for existing text.

QUICK SAVE

Now that you've made editing changes to your document, you'll want to store this back on the disk. A faster way than bringing up the File Requester again and using *Save* exists.

If you have already loaded the document from a disk file, the wordprocessor will have the name of that file displayed at the top of your screen (on the title bar).

If you modify the text of an *existing file* and want to store it to disk under the same filename, incorporating the changes you made, all you need to do is press the F4 function key once. This will instantly update the disk file named on the title bar. Please update the *HERMAN.DOC* file at this time.

NEW DEFAULT SETTINGS

What if you do not like the way the defaults are set when the wordprocessor boots up. Are you a little confused? It's simple, the wordprocessor boots up with certain settings such as a page offset of 0 and a line length of 65. If you usually print large documents, and want them squeezed on one page, it will become tedious to make these changes each time you boot the wordprocessor. To remove this chore, all you would do is adjust the wordprocessor defaults to the proper settings, and *Save* them under the *Preferences Save* menu item. The name you should use is *Word*.

From this point on, the wordprocessor will boot up to the new format YOU designed, rather than the one built into the program. This will only happen if the filename for the new default format is *Word*. Any other filename will have to be loaded manually. (The *Preferences Save* requester will add the *.fmt* extension automatically, storing the file as *Word.fmt*.)

The *Preferences* menu has many options with which you may wish to experiment. They are all self explanatory in their own way. The best way to see the results is to test them.

DOCUMENT PRINTING

Printing your document is easy, but some people will have trouble getting their printouts to appear exactly as they want them. Remember, *System Preferences* must be correctly configured: Left Margin set to 1, Right Margin set to 255, a compatible printer driver selected, etcetera.

Now you are ready to print out your document. If you do not have the *HERMAN.DOC* file loaded, please do so now. This is a good sample to print out your first time.

With *HERMAN.DOC* on screen, select *Print Go Printer* from the menu (or press Right-Amiga G). Printing begins and continues to the end of the document.

ABORTING PRINTING

If you wish to stop printing before the document has been completely printed, while the printer is still printing, press the Esc key. When the mouse pointer returns to a pencil, turn the printer power off.

PREVIEWING A DOCUMENT

Before you printed this document, you could have selected *Print Preview*. *Print Preview* will do exactly that. It will allow you to view ON SCREEN exactly how the document will look on paper. This option is a timesaver and it may be beneficial to experiment with its results.

EXITING

To leave the wordprocessor and return to the main screen, select *Project Quit*. If you have not saved the document upon which you are working, a verification requester will appear. This is your last opportunity to change your mind before erasing the document without saving it. Selecting *NO* ends the program and returns to the main *PLATINUM WORKS!* screen. If you have not yet stored the document on screen to a diskette, select *YES*. This saves the document and then quits.

If you **ARE** ready to leave the wordprocessor, select *NO* and you will exit the program immediately.

In the next chapter, we will discuss some of the advanced features of the wordprocessor.

CHAPTER 9B

WORDPROCESSOR ADVANCED TUTORIAL

This chapter covers the advanced functions of the wordprocessor.

ALTERNATIVE FILE EXTENSIONS

If you use the wordprocessor to write a Script (.scp) file for the telecommunications program (or other non-document files using specific patterns at the end of a file name) use the *Project Save* or *Project Save As* menu item. Click on the .doc gadget to the right of the word Pattern: on the File Requester until the correct pattern displays. If the pattern you wish to use is not among the choices, select *ALL* and specify the pattern yourself as part of the filename you type into the *Selection:* input area. Type the filename, a dot (period), and the extension. For example: *Rawls.scp*

DEFAULTS STATUS

The *Info* option under the *Project* menu displays the current settings to which the wordprocessor defaults. These are settings that will affect the appearance of the editor and the final printed copy.

It is a good idea to check the status of the defaults before printing. You can also type Right-Amiga S to view the current defaults. (Do not confuse with *Left-Amiga S*, which deletes all spaces from the cursor to the next non-space character).

Select the "OK" box to return your edit window by clicking the left mouse button on it.

See the section *New Default Settings* in the previous chapter for details on saving these changes.

DISPLAY COLORS

You can change the color of the screen with *Preferences Background* and also change the color of the text with *Preferences Foreground*. The number and available colors are those that you set from the main screen *Project Preferences*. Some color combinations may be easier on your eyes, while others will just shock anyone strolling by. Take time to find the colors of your choice.

DOCUMENT FORMATTING

Many of the wordprocessor's formatting functions may be invoked from menu items or with dot commands. Paragraph alignment is the first formatting function covered.

PARAGRAPH JUSTIFICATION

This can be controlled two ways. First, there is a command on the wordprocessor *Preferences* menu which can engage right hand margin justification (both margins smooth). This will also turn on justification for the display. The program will add "soft spaces" on the screen to fill out each line until the margins are smooth.

To see these spaces, you can turn on the special "background" display by typing Shift-F10. This shows all the spaces on the screen that you did not type with the space bar as a reverse video "hash". You can use this to see how many spaces are really at the end of a line, or to see the soft spaces inserted into a line when justification is on.

This can be very useful when editing those lines. By turning on the background, you can see the soft spaces and steer clear of them. In addition, there is a command to temporarily remove the soft spaces from a line while you're editing it. Typing Left-Amiga R will make the soft spaces disappear until you move the cursor off the line.

Besides the *Preferences Justify* menu command, there are dot commands that can be used in format lines to control text justification.

A complete list of dot commands appears later in this section, but the justification commands are:

- .JU** Justification on or off. This is a duplicate of the *Preferences Justify* menu command, and will override the current status of that command (i.e. you can have justification on the screen, and edit the document that way, but if you have a ".JU=N" command on a format line in the document, there will be no justification).
- .FR** Engages "flush right" justification, where text is printed smooth against the right hand margin, but ragged against left. This is used when you want to set some text against the right hand margin (e.g. a date in a letter, or some numbers in columns).
- .HI** Hanging indent. This command sets a column position where the text should begin when the PROGRAM wraps a line. If the line is ended manually, this does not take effect. Only when a line is wrapped by the program will this indent be used. This is useful when typing a document like this one. All the definitions are wrapped evenly by using a dot command similar to the following:

.HI=10,JU=N

Let's refer to the HI explanation above. Notice where Hanging Indent begins and assume it is in Column 10 on the bottom of your screen. As you type, there is no need to pay attention to where the line ends or wraps, for the .HI=10 command will get the wordprocessor to print out the document with the wrapped line being directly under the first line, even though it didn't look that way on screen.

IMPORTANT

Type dot commands on a line **ALL BY THEMSELVES**, directly above the text on which you want them to perform their functions.

If you typed a sentence that was long enough to wrap around to another line, you would have to put the .HI=10,JU=N RIGHT ABOVE the first word of the sentence (ON A LINE BY ITSELF).

The first two of the dot commands listed above are ON or OFF values. The arguments they accept are "Y" for yes and "N" for no (JU=Y or FR=N). The third is a column position and has to be specified with a numeric value (HI=10).

LINE LENGTH AND HORIZONTAL SCROLLING

A full sized the wordprocessor edit window can display 76 characters on a line. We make the distinction of "full sized" because you can use the sizing gadget in the bottom right hand corner to shrink a window (when you need multiple windows visible at the same time). Line length can be adjusted with the dot command *LL* or from *Preferences Line-Length* menu item

Should your line length be greater than the number of characters that will fit on the screen, the wordprocessor will not be able to show you all the characters on the line at one time. In these cases, horizontal scrolling will automatically take place. Also, the proportional scroll bar at the bottom of the edit window can be used in displaying the text not visible on the line.

If your line length is FEWER than the number of characters the wordprocessor can display on a line, the program will automatically center your text in the window. This does not mean that the extra margins will print on the page. It is just for visual aesthetics.

Line length can be adjusted from within your document with the LL (Line Length) dot command (e.g. LL=55). This is useful when you need to temporarily shorten the line length, as with an inset paragraph, or when you want to edit the document with a line length OTHER than the one with which you wish to print. However, to have your line breaks displayed properly, you should set the display line length to the

same value as your printed line length.

TABS

The wordprocessor features user definable tab positions. Even though these do not show on the screen, you can still adjust them. If you use the *Preferences Tabs* command, the wordprocessor will prompt you for a list of column positions for the tab stops. For specific details, look up this command in the Reference Guide.

Tab stops will be saved in the format files, so you should only have to enter them once.

MARGINS AND PAGE SIZE

Several commands on the *Preferences* menu are used to define the default page size. Of these, *Line Length* has already been defined. The others are sub-options under *Preferences Page Setup*.

Preferences Page Setup Page Height lets you tell the wordprocessor how many lines long each page should be. The default value is 66, the standard for an 11 inch page with a line spacing of 6 lines per inch. Unless you are printing on some other size paper, or with some other line spacing, you should not change this value

Preferences Page Setup Page Offset tells the wordprocessor how many spaces to print at the start of each line when it's printing out your document. This will not show on the screen, since it is only of value when printing. In some applications, you may want to indent more on one page than the next (one instance is printing text that will be copied on two sided paper). To help with this, you can use the dot commands *EO* (Even Offset) and *OO* (Odd Offset) to set a separate page offset for even and odd numbered pages.

The other two options of *Preferences Page Setup* that affect page layout are *Top Margin* and *Bottom Margin*. These are the number of lines the wordprocessor will skip at the top and bottom of each page. This is used to prevent the program from printing on the perforations of fanfold paper or to skip over letterhead.

To calculate the number of USABLE lines on a page, subtract the top and bottom margins from the Page Length.

Once you have told the wordprocessor how long the page is, how long your lines are, and how many lines you will be skipping for top and bottom margins, it has a clear definition of your page size. It will use this in calculating the "current page" number that is shown in the status window. If you use dot commands in your text that can alter the page breaks at print time (*HI* - Hanging Indent, and *CP* - Conditional Page are two examples), the current page indicator may not be accurate. In those cases, use the Left-Amiga J command to jump to the next printed page break. If the page ends in the middle of a paragraph, use the "up" arrow key and insert a Left-Amiga P in a better space to FORCE a page break.

You can also define commands that will be sent to the printer before any text. Use *Preferences Page Setup Special* to define the setup string and font codes. Remember that if you are using the normal wordprocessor printer routines, this will be sent via the AmigaDOS Preferences printer driver. This setup code should be something that IT will understand. If you are using the "print to file" function and printing directly to the parallel port (i.e. printing to PAR:), then the setup string and all other data will be sent to the printer untranslated.

CARRIAGE RETURNS AND LINE FEEDS

The wordprocessor places a paragraph symbol (§) in the text wherever you press Return. You can decide what this paragraph symbol will be when the file is stored to disk. You may choose between a carriage return (*CR only*), a line feed (*LF only*), or a carriage return followed by a line feed (*CR+LF*). The selection is made from the *Preferences File Format* submenu.

Standard Amiga text file format is a line feed, and this is the wordprocessor power up default. However, a file that will be uploaded to a electronic bulletin board or information network will likely need a carriage return followed by a line feed.

When the wordprocessor loads a file, it checks for which format the file was stored with on the disk. It then moves the check mark for you, so that you can load, edit, and save a document without changing the format and or altering it.

If you WANT to alter the format of a document, just use the *Preferences File Format* command and move the check mark to a new location.

You'll probably want to store your most commonly used format as part of your default format file.

FIND AND REPLACE

After writing a memo or report, you may have the misfortune of finding out that Mr. "Smythe" spells his name "S-M-I-T-H". With a wordprocessor, the change is easy, involving only two steps.

First, tell the wordprocessor to search for "Smythe" by selecting *Document Find* and then entering the text *Smythe* in the requester. Click on *OK* or press Return.

Immediately the cursor will move to the first location of *Smythe*. If all you want to do is find the various locations of *Smythe*, you can repeat the process by clicking the left mouse button, by pressing the F9 function key, or by pressing Ctrl-L.

To replace the various occurrences of *Smythe* with *Smith*, go back to the top of the document, and select *Document Replace*. (Since you have not altered the *Find* text the wordprocessor will use *Smythe*.) A requester appears in which you enter the replacement text. Enter *Smith* and press Return. The *Replace* requester will disappear and the *Replace Action* bar will be displayed. This set of gadgets controls how the replacement occurs. Choose *Skip*, *Change*, *All* or *Quit*.

SKIP This goes to the next occurrence of the *Find* text without changing the highlighted word.

- CHANGE** This exchanges the highlighted text with the text supplied in the *Replace* requester.
- ALL** This exchanges all occurrences of the *Find* text with the *Replace* text.
- QUIT** This halts the *Replace* operation and returns to the edit mode.

The wordprocessor will search out every occurrence of *Smythe* and prompt to see if you want to change it into *Smith*. Note that *Find* and *Replace* commands are upper and lower case letter dependent. So, if you instruct the wordprocessor to search for *SMYTHE*, it will not find *Smythe*. You must enter the text to search for **exactly** as it is in the document. *Find* begins from the location of the cursor and moves to the end of the document.

BLOCK OPERATIONS

A block operation occurs when you highlight a group of words and alter that text in some way. Cutting one paragraph from a document would be doing a block operation on that paragraph. (So would styling that paragraph **boldface**, or moving it.)

Doing a block operation in the wordprocessor is simple. First you tell the program what type of operation you would like to do, and then you tell it on which text to operate.

There are four block operation commands on the *Mode* pull down menu. *Mode Cut* is used to delete text from one location and, if you like, insert it in another with *Mode Paste*. *Mode Copy* is used to "take a picture" of text from one location in the document and insert it somewhere else. *Mode Paste* is used to insert text that has been cut or copied.

Mode Style has a submenu that selects the style attribute to be used: Plain, **Bold**, Underline, *Italic* Superscript and Subscript.

When you select the type operation that you want, your mouse pointer will change shape and the "Mode" indicator on the status window will reflect the new mode. The wordprocessor will remain in this mode until specifically told to return to the *Mode Edit* mode.

Once you pick the mode you want, it is simple to define the text you want to operate on. There are two methods, one using the mouse and the other using the keyboard.

If you now select *Copy*, (notice the pencil pointer turn into a camera) and want to define a block of text with the mouse, point at the start of the block (paragraph or sentence), while holding the left mouse button. Drag the camera to the end of the block (which causes the text to highlight as you move) and when you have highlighted all you want, release the mouse button.

The block *Copy* operation will be performed as soon as you release the mouse button. This is also correct procedure for the other two modes. If you make a mistake when defining a block with the mouse and want to get out of the block definition sequence, just move the mouse pointer off the edit window exactly to the left hand or top borders. The block definition will instantly abort and you can then release the left mouse button.

Defining a block of text with the keyboard is equally simple. Move the cursor to where you want the block to begin and press the F9 function key. Move the cursor to the end of the block, which will cause the text to highlight as you move, and press RETURN. Whatever block operation you were performing will occur instantly.

To delete a block of text just select the *Cut* option (notice the pencil pointer turn into a scissor). If you want to move a block, first you cut it and then select the *Paste* mode (notice the scissor turn into a tube of paste). When you're in the paste mode move the cursor to where you want the block to be and press F9 or point with the mouse (if you're moving it to a location on the screen) and click the left button.

Copying a block (notice the pointer turn into a camera) is identical, except that you must use the *Copy* command instead of *Cut*. *Copy* just

"takes a picture" of the text. Then when *Paste* is selected and inserted somewhere else, you will have two copies of the block.

Block operations work between windows. This is how you join two documents. Load the first document into window one (by selecting it from *Project Open*) and load the second document into window two (by selecting it from *Project Open*). Then *Cut* or *Copy* the document from the first window to the second and *Paste* it.

BLOCK STYLING

The same general rules apply when styling existing text. As you learned from the list of command keys defined earlier, you can change the style of your text while you are typing by using the special function keys assigned. However, applying style to existing text is another matter.

First, just as with block operations, you must define the style you wish to apply. Select *Mode Style* and a pop-out menu appears with your choices. You may choose *Plain* by itself or any combination of the other three: *Bold*, *Underline*, and *Italic*.

Once you define a style to apply, the mouse pointer will assume the shape of an artist's paint brush and the "Mode" indicator on the status line will read "Style". Now, just define the block you want to style, exactly as described above for the other block operations (notice when you perform an operation you get a paint roller, rather than the camera or paint brush etc.)

To remove style from text that is already styled, you only need to apply the Plain "style" to it. Plain is the absence of other styles.

THE EDITOR'S TOOL BOX

A wordprocessor offers you the ability to move, copy and delete marked blocks of text. You can move quickly through a document, deleting and inserting characters. Special printing functions like

boldface and underline are available, along with other advanced formatting features.

While many wordprocessor functions use easy to operate menus, a good number are also started by keyboard commands. Several "transparent" commands are provided for simple operations. They are sometimes called "keyboard commands", since they are activated by pressing the Left- or Right-Amiga key (or the Ctrl, Alt, or Shift key) simultaneously with another key. Many writers find that it is much faster to keep their hands on the keyboard rather than constantly having to use the mouse for routine operations.

Some commands use the "Right-Amiga key". Pressing and holding the right Amiga key then pressing a letter key activates these commands. Right-Amiga keys are used to duplicate commands found on pull down menus (such as *Copy* and *Paste*). The wordprocessor provides these for many common menu commands. Left-Amiga combinations are used to perform other actions.

KEY COMBINATION ACTION

Left-Amiga A	Search again
Left-Amiga D	Delete a character
Left-Amiga E	Brings cursor to the last line of the document
Left-Amiga G	Used to print a variable code
Left-Amiga I	Toggles Insert On and Off
Left-Amiga J	Jumps the cursor to the next page
Left-Amiga L	Deletes the entire line the cursor is on
Left-Amiga P	Insert a new page (forced page break)
Left-Amiga Q	Quits the line the cursor is on
Left-Amiga R	Deletes soft spaces
Left-Amiga T	Brings the cursor to the top of the document
Left-Amiga W	Deletes the word the cursor is on

FORMAT LINES (DOT COMMANDS)

If you wish to temporarily change the margins, spacing or other printer characteristics, enter a format line (dot command) into the body of the text.

A format line is any line beginning with a period character (a dot command --- *.HI=10* etc.). The wordprocessor will not print any text on this line, but rather scans the line for legal dot commands.

A dot command is a two letter command, an equals mark, and an argument (sometimes a value, sometimes a Y/N switch). For example, to set a temporary left margin, change the line length and begin justification (which is something you might do for an inset paragraph), you'd use the format line:

.LM=10,LL=40,JU=Y

Note that all three commands can be on the same line as long as they are separated by commas, **but a dot command MUST be on a line ALL BY ITSELF.**

Remember that if this is a temporary format. You must re-set to the original specifications after the affected block. For example, you might return to a format something like:

.LM=0,LL=54,JU=N

Notice the first command was *.LM=10*, while it ended with the value being *0*.

Dot commands will not alter the way the text looks on the display screen, for only menu commands can do that. The affect of dot commands will only be seen when your text is printed or when using *Print Preview*.

TEXT FORMATTING CODES

The following commands can be embedded into a document with format lines (dot commands). Remember, these format lines will not be printed.¹ They only control the way the document will look after it is printed.

Note that format commands should be preceded by a period "." and must be isolated on a line, not imbedded within a sentence, although multiple commands may be placed on the same line, separated by commas.

CODE	ACTION
.JU=Y/N	Begin justifying text
.FR=Y/N	Begin printing flush right
.HI=xx	Set hanging indent to "xx" column

(These codes are explained under the section "Text Justification".)

Setting the wordprocessor Margins

.PO=xx	Set page offset (default 0)
.EO=xx	Set even page offset (default 0)
.OO=xx	Set odd page offset (default 0)
.LM=xx	Set left margin (default 0)
.RM=xx	Set right margin (default 65)
.LL=xx	Set Line Length (default 65)
.LS=xx	Set Line Spacing to 1
.PN=xx	Begin page numbering with xx

¹If dot commands are printing, check that the dot is in the leftmost column and that the command is on a line by itself. The only reason a dot command will print is if it is incorrectly formatted.

Printer Controls and Miscellaneous

.LF=Y/N Line feeds after Carriage returns
..text Non printing remark line
..#n/x=ccc Define special print code

HEADERS AND FOOTERS

No word processor is complete without Headers (titles at the top of the page) and Footers (titles at the bottom). The wordprocessor supports both. Although it only allows a single line for a title, the format within this line is flexible, accommodating several built-in convenience functions.

The symbols @ and # can be used to include the current date (@) or page number (#) within a title. When the @ symbol appears the result is the date printed in the following format: DD-MON-YY.

Here's a list of all the title commands (a title is a header or footer), and some examples of how they work and what type output they generate:

Title Format	Command	Print Location
.HE=	Header	Top Margin
.FO=	Footer	Bottom Margin
.EH=	Even Header	Even Pages (Top Margin)
.OH=	Odd Header	Odd Pages (Top Margin)
.EF=	Even Footer	Even Page (Bottom Margin)
.OF=	Odd Footer	Odd Page (Bottom Margin)

All titles follow the same general format:

.HE=Left/Center/Right

Examples:

.HE=@/Page #/Memorandum (on a line by itself)

Header Result:

11-MAY-88

Page 1 Memorandum

.HE=//Proposal (on a line by itself)

Header Result:

Proposal

.HE=INVOICE (on a line by itself)

Header Result:

INVOICE

.HE=/Page #/ (on a line by itself)

Header Result:

Page 1

Footers work just like headers, except using ".FO" instead of ".HE". Also, if you **boldface** or underline part of the header/footer text, then that portion of the header or footer will be boldfaced or underlined when printed out.

IMPORTANT

DO NOT apply any special style to the format dot commands themselves. The wordprocessor will not understand a boldfaced ".HE".

Special Page Control

.SS=Y/N	Single Sheet paper used
.HM=xx	Header Margin (xx lines)
.FM=xx	Footer Margin (xx lines)
.PL=xx	Physical Page Length (default 66)
.PS=xx	Page spacing between pages (MB + MT)
.MT=xx	Margin Top (default 6)
.MB=xx	Margin Bottom (default 6)
.CP=xx	Conditional Page (new page; <xx lines)
.FF=xx	Conditional Form Feed (form feed; <xx lines)

Page Spacing (PS) is a combination of Margin Top and Margin Bottom. Some people prefer to think in terms of Page Length (PL) - (minus) Page Spacing (PS) = (equals) usable lines. If you choose to use this parameter, your top margin will be set to 0 and the bottom margin to the value PS equals.

Conditional Page (CP) lets you tell the wordprocessor how many lines MUST fit on the bottom of a page before it may start a paragraph on that page. If, for example, CP equals "5", then the wordprocessor will make sure that it can print at least 5 lines of each paragraph before starting it on that page.

Keep in mind that lines on which you have manually pressed Return (such as tables and columnar data), will be considered as separate paragraphs. Sometimes this causes confusing results.

This anti-orphan feature is one of the dot commands that will cause the active page indicator in the status window to be inaccurate. If you're using this command, you may have to use Left-Amiga J to correctly display your page breaks and Left-Amiga P to insert a new one. An "orphan" occurs when some text ends up on a new page, when you intended it to be on the same page. Like if you wrote a letter and signed it as follows:

Sincerely,
Esther L. Appleman

What if this ending wound up on a new page, all by itself? This is called an "orphan". While this would be terrible, a correction could be made. All you do is change your top and bottom margins to accommodate the space and then the ending will appear on the same page, or you could force a page break a few paragraphs before.

Conditional Form Feed (.FF=xx) is used to keep such things as tables from splitting between two pages. If used without an argument, it forces a page break at that point. It is used with an argument that is the number of lines the wordprocessor must have remaining on the page when it encounters the command, for it to continue printing on that page. If fewer lines remain on that page than are specified in the command, the wordprocessor will skip to the next page when the command is encountered.

SPECIAL IMBEDDED PRINTER COMMANDS

You can insert control characters to activate special print characteristics that may be supported by your printer. These codes are in two parts. The first part, usually placed at the top of the document, before any text, is the dot command(s). Later, in the body of the text, Left-Amiga G commands are used to invoke the dot command(s). The dot commands adhere to the following format:

.#0/x=string of characters

The "#0" tells the wordprocessor to use this code when it sees the Left-Amiga G symbol followed by a number "0". The "x" is either 0 or 1 (1 means that the string will produce a printed character, so justify it; 0 means that the string is for printer control only). The string of characters can be either ASCII text or control characters (e.g. ^A would send a Ctrl-A). Also allowed are decimal values, preceded by a percent sign (e.g. %221 would send a 221 decimal). When reading decimal numbers, input will be accepted until the next non-numeric digit (or for a maximum of three digits, whichever happens first). Special embedded codes used for printer control are usually created in pairs; one to start a feature, the other to return things to normal.

So, you could have as follows if you needed expanded print using an Epson printer driver:

.#1/0=[6w Turns ON expanded print.

.#2/0=[5w Turns OFF expanded print.

Now, before you started typing the print you needed to expand, you would need to type a Left-Amiga G followed by the number 1 (on the same line as the text) before the text. When you were finished, you would put a Left-Amiga G symbol and a 2 after the text.

The Left-Amiga G-1 will execute the /6w command and the Left-Amiga G-2 will execute the /5w command. You may have a document that looks similar to the following:

.#1/0=6w

.#2/0=5w

Left-Amiga G 1 (s y m b o l) MICRO-SYSTEMS Left-Amiga G 2
(s y m b o l)

What will happen above, is the *MICRO-SYSTEMS* will be expanded and then the text you enter after the Left-Amiga G 2 will be regular.

Any ASCII character can be "programmed" into a document with this feature following the insertion of the proper format line.

.#0/1=%175

The dot or period tells the wordprocessor that a format line is coming. The "#0" tells it that we are defining a code that will follow Left-Amiga G, in this case the numeral 0 (although it could be any between 0 and 9). The "/1" tells you that the 175 character will be a printable character; if you wish to specify a non-printable control sequence such as superscript or subscript, it should be followed by a "/0", that way it will not alter text justification. The "%175" is the decimal equivalent of a paragraph symbol on some printers. (Consult your printer manual

for a listing of characters and their decimal equivalents).

Most printer manuals list the special characters on a reference page, sometimes called decimal codes. Usually each character is listed with its decimal, hexadecimal, octal and sometimes binary code. The wordprocessor uses only the decimal value.

So besides the normal **boldface**, underline, and *italic* codes, you can "program" ten more use at your discretion.

If you are using a printer driver specified in Preferences, then specify escape sequences that it understands with printer variables. (In other words, if you want to superscript on your printer, instead of sending the code that makes your PRINTER superscript, send the code that makes AmigaDOS PREFERENCES superscript with the printer driver you are using.)

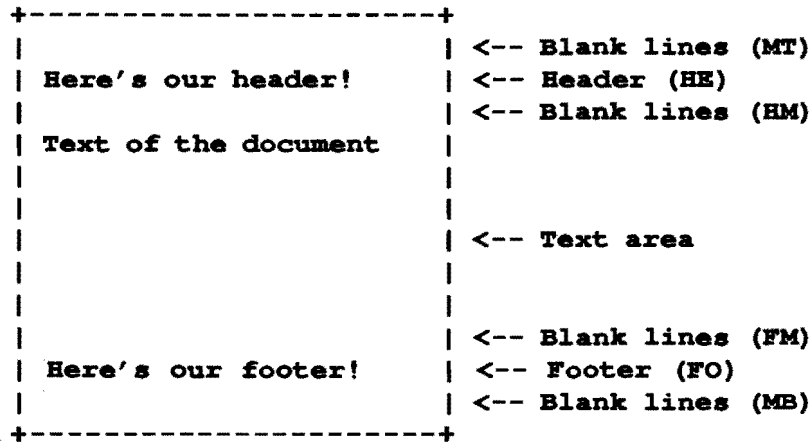
You can find the list of AmigaDOS Preferences Printer Escape Codes in Appendix D of your *Amiga User's Manual*. Whether your printer driver supports this feature is not certain. The Amiga ROM Kernel Manual Volume 2 contains a list of which printer drivers support which features, but that list is also too long to publish here. You can experiment with trial and error to see which features work and which do not.

Some of the features listed in the Amiga User's Manual Appendix D are duplicates of the built-in wordprocessor functions. Where this occurs, use the wordprocessor command. Save these escape sequences for things such as super/subscripting and other special features not built into the program. Remember these are escape sequences that Preferences knows and translates for your printer driver, AS LONG AS your printer accepts such codes.

If a function does not work with your printer, it is probably because the AmigaDOS printer driver for your printer does not support it.

PAGE LAYOUT

Here's a diagram of a printed page and all the dot commands that affect it:



Keep in mind that most of the time, the default values will be fine. There is rarely a need to change items such as header and footer margins (HM and FM), which are the number of lines printed between the body of the text and the headers or footers.

GRAPHICS

The final dot command discussed allows you to insert graphics in your documents. It is the *.IP* (Insert Picture) command.

The insert picture command is entered as:

.ip=filename.iff,1.00,4.00,2.8,4

It is composed of the dot command and an equals sign, followed by a five field argument. The five arguments are separated by commas.

The first argument field is the filename of the graphic to be printed. This can be preceded by a drive/path.

.ip=DataDisk:Pictures/filename.iff,1.00,4.00,2.8,4

The second field represents the left margin, in inches. Note that if the left margin is too great, the picture will "smear" and you will not get a clean left margin.

The third field is the width of the picture, in inches.

The fourth field is the height of the picture, in inches. This must be an even multiple of the lines-per-inch setting being used by the text.

The fifth and final field is the special density setting that the HP_Laser_Jet uses. It will be between 1 and 7 and is similar to the *Density* setting on the AmigaDOS Preferences *Graphic 2* screen.

One note: If your driver automatically sends a form feed when switching between text and graphics, then you'll have to patch the driver and null out the form feeds.

PREFERENCES PRINTER DRIVERS

These drivers are supplied and supported by Commodore-Amiga, Inc., not Micro-Systems Software, Inc. If you have a problem with a printer driver, contact Commodore Technical Support.

What to do if your printer is NOT in Preferences...

Many of you may not be using a printer that AmigaDOS Preferences supports. The wordprocessor makes special provisions to bypass the AmigaDOS Preferences drivers. You must use printer variables to specify the printer control values for YOUR printer (i.e. not from the table above).

Instead of selecting *Print Go Printer* to begin your printout, select *Print Go File*. When the wordprocessor prompts you for the filename to print

into, enter *PAR:* (you must include the colon). This is the name of the parallel device. All data will then be sent to the printer completely untranslated. Some printers connect to the serial port. The serial device name is *SER:*.

It means that the onscreen boldface, underline, and italics cannot be used, since these transmit Preferences escape sequences. You cannot use the *Print Forward* feature, since this assumes you will print to the normal printer device (*PRT:*). You'll have to compensate by using the embedded control codes or deleting text that has been already printed before.

It is hoped that your printer will be among those listed in AmigaDOS Preferences, and you will not have these problems. If you DO encounter difficulty, the wordprocessor should let you compensate.

FUNCTION KEY SUMMARY

KEY	ACTION
F1	Displays an "help" screen that lists the various commands and their functions.
F2	Displays a "dot command help" screen that lists the various dot commands that can be used on format lines.
F3	Centers the current line.
F4	The instant save function. This stores the document in memory to the same file displayed on the top title bar next to Project.
F5	If you are using multiple edit windows, pressing this key will bring up the next edit window for your viewing.
F6	Turns on (toggles) the boldface character typing mode.
F7	Turns on (toggles) the underlined character typing mode.
F8	Turns on (toggles) the italics character typing mode.
F9	This is the "action" key. It is used at various times by different operations. It functions as a signal to the wordprocessor.
F10	Opens and closes an "insert block" to accommodate rapid insertion of large text.
Shift-F9	Toggles paragraph markers on and off.
Shift-F10	Toggles the soft-space display on and off.

NOTES

CHAPTER 10A

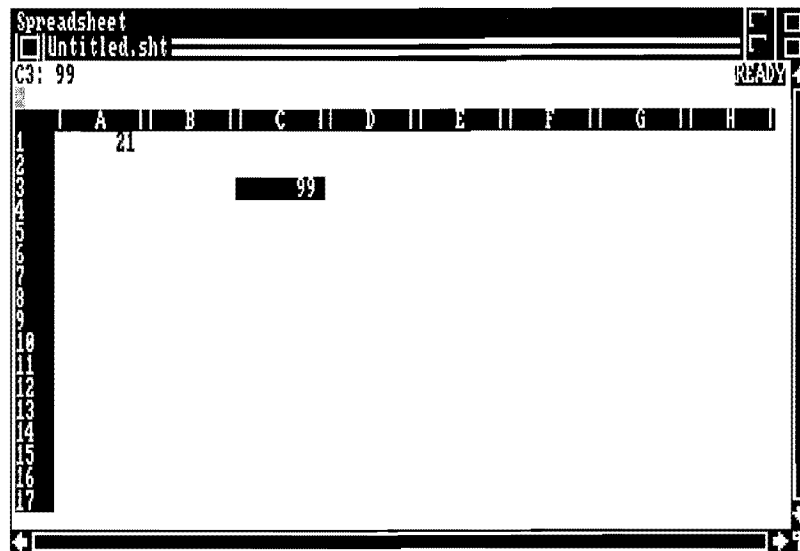
SPREADSHEET BEGINNER'S TUTORIAL

OVERVIEW

This tutorial takes you step-by-step through the basics of operating the electronic spreadsheet. It is here you will learn to start the spreadsheet program, move about the worksheet, enter values and formulas, save your worksheets and exit the program successfully. Upon completion of this tutorial, it is our intention that you have a basic understanding of the spreadsheet. Information for the Advanced User can be found in the Advanced Tutorial (Chapter 10B), the Reference section (Chapter 21), and two chapters on special features Graphs (Chapter 14A) and Macros (Chapter 14B).

WHAT IS A "SPREADSHEET?"

A spreadsheet is a work area divided vertically by lettered columns and horizontally by numbered rows. A cell exists at the intersection of each row and column. Each cell is identified by an address consisting of a letter and a number. For example, in the spreadsheet shown below, the number 21 is in cell A1 and the number 99 is in cell C3.



Within each cell, you can enter a number, label, or formula. A label is used to name a column or row. In the following example, column B is used to post January sales receipts. A cell label, JAN, has been entered in cell B1 to name the figures displayed in column B.

Beneath JAN are numbers representing product sales information. Cell A2 is a label that names the product for which sales are being tracked (TILE). Column B represents January sales and row 2 represents TILE. Cell B2 shows tile sales for January.

In cell B6, where the column B total is to be calculated, a formula has been entered: +B2+B3+B4. The results of the formula are displayed in cell B6, while the actual formula is visible at the top of the window when the cell pointer is placed in cell B6.

	A	B	C	D	E	F	G	H
1								
2	TILE	9000	JAN	FEB	MAR			
3	GLUE	2000						
4	GROUT	700						
5	-----	-----						
6	TOTAL	11700						
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								

The real value of spreadsheets is their ability to create mathematical simulations or models. In the example provided, imagine that instead of actual sales, these are budget figures. With a spreadsheet, it is easy to change one assumption and see the effect upon the entire worksheet. For example, if you want to change GLUE sales to \$2,500, move the cell pointer to cell B3 and enter 2500. The total in cell B6 is updated to 12200.

When using a pencil, paper and calculator, every time you change a number you have to re-calculate all the values. The more complicated your work, the longer the process takes. In the case above, it would have been easy to understand that increasing one of the elements of the list you were adding up by \$500 increases the total by the same amount. Were you working on a more intricate budget, one where percentages were calculated and spending projections were made based upon those percentages, every time you changed one number, you would have to recalculate all the related numbers -- which can rapidly become a tedious job!

One of the basic strengths of an electronic spreadsheet is that it does

all recalculations automatically. Each formula is recalculated and every cell is displayed in its updated form, all in the blink of an eye.

STARTING THE PROGRAM

Load the spreadsheet by selecting *Project Spreadsheet* from **THE WORKS! PLATINUM EDITION** menu. The spreadsheet will load with a default spreadsheet size of 16K. This is more than enough for most applications. When spreadsheet larger than 16K is loaded, the program retrieves that spreadsheet from disk and automatically increases the window size to make room for the spreadsheet and allocates additional space for (an average amount of) changes.

If you want to change the amount of memory allocated, see the section on *Tooltypes* in Chapter 18.

CREATING A WORKSHEET

When you load the spreadsheet, the system displays a blank worksheet with the cell pointer (a highlighted video bar) located in position A1. The spreadsheet is ready for you to begin entering information into the worksheet.

The location of the cell pointer is important. At the moment, it is located in cell A1. What this means is that whatever you type will get placed into that cell. Just like an accountant writes to different portions of the ruled ledger sheet by moving his pencil and writing, you will write to different portions of the worksheet by moving the cell pointer and typing. Let's practice this a little.

Type in the number 21 and press the Return key. The number should appear in cell A1 unless you moved the cell pointer. Now press the down arrow key. The cell pointer has moved to A2. Enter another two-digit number in cell A2. This time do not press Return, but press the down arrow key instead. The program puts the number in the worksheet and the cell pointer moves down one cell, ready for another number.

Wherever you move the cell pointer, that's where your input will go. When you want to type something into a cell, you can either type it in and press Return, which enters the data and leaves the cell pointer on that cell, or you can type it in and move the cell pointer to another location, which automatically enters the data.

Since the cell pointer is so important, the commands you use to move it around are equally important. Let's review.

MOVING THE CELL POINTER FROM THE KEYBOARD

The simplest way to move the cell pointer with the keyboard is to use the arrow key cluster. This moves the cell pointer one cell in the direction of the arrow (i.e. pressing the up arrow key moves the cell pointer one cell up in the worksheet, pressing the right arrow key moves the cell pointer one cell to the right in the worksheet, etc.). If you move the cell pointer outside of the worksheet, or into an area that is being used as a title, the spreadsheet will beep at you to signal your error. If you're at the edge of the window, and there is more worksheet to display in the direction you're moving, the window will scroll to reveal more of the worksheet.

You can never move the cell pointer off the window. The program will either move the window so that you can see the cell pointer again, or it will sound a tone. So, by moving the cell pointer, you can also move the window.

The next level of cell pointer movement involves the Shifted arrow keys; hold down one of the Shift keys and press an arrow key. The cell pointer moves according to the following table:

Key	Movement
Shift-Up	Moves up one "page"
Shift-Down	Moves down one "page"
Shift-Left	Moves one "page" to the left.

Shift-Right	Moves one "page" to the right.
Alt-Up	Moves to the first data cell of the worksheet. Usually, this is A1, but you can use horizontal and vertical titles, which cause the first cell available for DATA entry to be somewhere else.
Alt-Down	Turns on the END function. If followed by Alt-UP, moves to the row, column intersection of the last row to contain data and the last column to contain data. While this cell may not itself contain any data, it is still the "lower right hand corner" of the worksheet space being used. If followed by an arrow key, it moves in that direction, range to range, skipping over empty cells. When the arrow is pressed the first time, the cursor moves to the beginning of the range; when pressed again, it moves to the end of the adjacent range. Additional presses toggle this action.

A "page" in the spreadsheet is defined as the number of rows and columns that can be displayed in the current window size. It is not a fixed number, so if you use the Shift-Right arrow key to move several pages, you can rest assured that you will not miss anything.

The final level of cell pointer movement is direct, with the GOTO function key F5. Cell columns are labeled "A" to "IV" and row numbers range from "1" to "8192". Let's assume that you want to position the cell pointer to cell IV8192 (the last cell in the worksheet). Even with page scrolling, it will take some time to get there. However, you can tell the spreadsheet to go DIRECTLY to that cell by using GOTO. To use this function, just press the F5 function key. You'll see the following prompt:

Enter address to go to: (current cell)

If you want the cell pointer to remain at the same address, press the Return or Esc key. To place the cell pointer at a new cell address, type in the new cell address and press the Return key. The current cell address at the prompt will be deleted and replaced with what you type. The spreadsheet will take you directly to the specified cell, with no waiting for the window to scroll.

MOVING THE CELL POINTER WITH THE MOUSE

The easiest method of moving the cell pointer with the mouse is to point at a cell that is visible in the current window and press the left mouse button. The cell pointer will instantly appear in the cell you were pointing at.

You may use the mouse to move the scroll bars located on the right hand and bottom borders of the window. The bottom scroll bar scrolls horizontally within the worksheet, and the right hand scroll bar scrolls the worksheet vertically.

The scroll gadget consists of two arrow symbols and a box that contains the scrolling device. The arrow symbols scroll the window one row or column, depending on which scroll gadget you're using, ((right hand = rows) and (bottom = columns)) in the indicated direction. If you select one of the arrows and continue to hold the mouse button, the scroll will repeat.

The scroll bars work two ways. The open area of the scroll gadget represents a portion of the worksheet that you CANNOT see with your current window size, and the solid area represents that which you CAN see. You can point at the open area above or below the solid area and press the left button, which scrolls the worksheet one "page" in the direction shown. Or, you can point at the scroll bar, press and hold the left mouse button, and move it. When you release the left mouse button, the program places the window at the new relative position in the spreadsheet. The position approximates that where you released the scroll bar.

When a new worksheet is opened, the scroll bars are solid. They will remain that way until data is entered that cannot be displayed in the current window. However, the scroll arrows may be used at any time.

One advantage of using the scroll bars to move the window is the window can be slightly adjusted **WITHOUT** having to move the cell pointer from its current location. This can save you scrolling over to the edge of the window, moving the window the desired amount and scrolling back to the cell you were editing.

STATUS INDICATORS AND DATA ENTRY

Now is a good time to become familiar with the information that can be displayed in the input area at the top of your window. There are three pieces of information that you will find useful. The Cell Pointer Address, Data Entry Area and Status Indicator. They work together to inform you about what is going on while you enter data into the spreadsheet.

The Cell Pointer Address: Is located in the upper left hand corner of your window, just below the title bar. The address serves a dual purpose, letting you know at which cell the cell pointer is located and displaying the contents of that cell. The information will appear something like this:

A1: (G) 11

Let's look at the different parts of this.

A1: (G) 11
^^^

This is the cell pointer's current location. It's over cell A1.

A1: (G) 11
^^^

This is the "format" of the cell. Here, (G) means that the cell is in "general" format. Cell formatting is a powerful capability of the spreadsheet that lets you control how the data in the cell will appear on the screen and on the printer. We will cover cell formatting in detail later.

A1: (G) 11
^^

The contents of the cell are displayed here. This example cell contains a two digit number; 11. If the cell contains a formula, you will see the formula listed here, while the cell itself, within the worksheet, will display the results of that formula. If the results of a formula do not look correct on the screen, you can position the cell pointer to that cell and check the formula at the top of the window. If it's incorrect, you'll be able to edit it.

The Data Entry Area: Is located underneath the Cell Pointer Address. Most of the time, it appears as a blank line. It contains information when you are typing something into the spreadsheet, or the spreadsheet is prompting you for some information. It is here that you enter information before it is placed into the worksheet. When you were entering those numbers earlier, you may have noticed this happening.

What happens if you are typing in some data and you realize that you don't want it entered into a cell (as might happen if you suddenly notice that the cell pointer is over the wrong cell)? Press the Esc key on the upper left hand side of the keyboard, and your input will be erased. When you're entering data, whether it's a value (number), label (text), or formula, it's not entered into the worksheet until you press the Return key or one of the direction keys. Until then, you may press the Esc key to quit from entering information.

The Status Indicator: Is located in the upper right hand corner of your window and appears as a single highlighted word. Most of the time, this will be the word **READY**, indicating that the spreadsheet is awaiting input. There are several others, defined as follows:

READY	The spreadsheet is waiting for you to do something.
WAIT	The spreadsheet is busy carrying out your last instruction and will accept no input at the moment.
VALUE	The spreadsheet has determined from your input that you are entering a number or a formula.
LABEL	The spreadsheet has determined from your input that you are entering a label.
POINT	When the spreadsheet prompts you to enter a cell range, you can type in the range coordinates from the keyboard or "point" them out with the keyboard's arrow keys or with the mouse pointer -- in which case the spreadsheet enters the point mode.
EDIT	If you want to change a cell's contents without retyping it completely, you can position the cell pointer over the cell and press the F2 function key. The contents of the cell will appear in the data entry area.
END	The program is in the END cursor movement mode.

There are two other words that can appear in the Status Indicator

area: CIRC and CALC. CIRC shows that your worksheet contains a "circular reference". This occurs when some formula that you've entered contains a reference to itself. Let's take a simple example. If you type the following formula into cell A1:

+A1+B1

it will produce a circular reference. If you look at it, you'll realize that the formula is telling the spreadsheet to add the contents of cells A1 and B1. Nothing wrong with that, except that since the formula is in cell A1, it must add itself to B1 before displaying a value. When the word CIRC appear in the Status Indicator, it's telling you that somewhere in your spreadsheet you have a formula that wants to calculate the value of a cell that includes itself as part of the formula. The location of the (first) such cell is given under *Project Info*.

The word CALC will appear when the worksheet has been changed, and you are set for Manual Calculate, informing you that you need to press the F9 function key (Recalculate the entire sheet). The spreadsheet can function in either a Manual Calculate mode or an Automatic Calculate mode. In Automatic Calculate mode, each time you enter a number, the spreadsheet recalculates all the formulas in your worksheet, on the chance that something you just entered may affect one of them. This is what lets those totals update themselves "magically" as you enter items into your budget. Which mode you use is controlled with the various commands on the Calculate menu.

Even with the spreadsheet's superior recalculation speed, a Manual Calculate may be needed if you have an extensive worksheet with many formulas and little desire to wait for the spreadsheet to recalculate the entire worksheet each time you type in some data. So, you set the spreadsheet for Manual Calculate, it lets you type in data as fast as you want, but signals you to press the Recalculate function key F9 manually when it senses that values may have changed.

The Status Indicator is often useful in determining why something doesn't seem to be working. You've learned that the cell pointer is the highlighted video block that you move around the spreadsheet and

when you type one of the arrow keys, the cell pointer should move in that direction. If you type an arrow key to move the cell pointer, and it doesn't budge. A glance at the Status Indicator will tell you what mode the spreadsheet is in. If it doesn't show READY, you should press the Esc key until it does.

This could happen should you begin entering a number and then change your mind. You backspace over all the digits of the number, but a glance at the Status Indicator shows you that the spreadsheet is still in the VALUE input mode. Pressing the Esc key will exit you to the READY mode.

Of all the various modes reflected by the Status Indicator listed above, the cell pointer will only move when the spreadsheet is in the READY mode. And pressing the Esc key will eventually return to the READY mode from any of the other modes.

ENTERING DATA

Now that we've discussed moving the cell pointer and entering simple data, it's time to practice what you've learned. Please enter the following numbers in all cells from A1 to A5 and B1 to B5 as shown below:



If there is data in some of the cells, left over from when you practiced entering and moving, just put the cell pointer on those cells and type in the new information. The spreadsheet will replace the previous contents.

Entering numbers into a worksheet is easy once you understand how to move the cell pointer. As mentioned earlier, if all you could do with a spreadsheet program is enter numbers and look at them, there would be no real advantage over pen, paper, and calculator. Besides numbers, the spreadsheet can accommodate "labels" and "formulas".

TYPES OF DATA

All the information you type into the spreadsheet will fall into one of three categories: Value, Label, or Formula. Each serves a different and equally important function.

VALUE

Values are numbers; the basic data with which a spreadsheet works.

LABEL Labels are used to identify an area of the spreadsheet. A label that identifies the entire spreadsheet is called a title. A label identifies a row or column of data, shows the result of a calculation, or indicates a location to input new data.

FORMULA Formulas are required for the spreadsheet to perform calculations on individual or groups of cells.

The relationship between these three categories is as follows. Values are your basic data (numbers). Labels identify this data and make the screen readable. Formulas are used to perform calculations on the data.

DETERMINING DATA TYPE DURING ENTRY

When you enter data into a cell, the spreadsheet determines what type of data it is by the first character typed. The spreadsheet determines that you are entering a value or a formula if the first character you type is one of the following:

0 1 2 3 4 5 6 7 8 9 + - . (@ # \$

The spreadsheet status indicator, located in the upper right-hand corner of the display, changes from READY to VALUE when you type one of these characters. Though there is considerable difference between a Value and a Formula, the spreadsheet treats both categories the same and changes the Status Indicator to VALUE. Since the result of a Formula will be a value stored in a cell, this is entirely normal.

If the first character of your input is anything OTHER than one of those listed above, the spreadsheet automatically determines that you are entering a Label. Labels are used to make the worksheet more

readable by identifying what the various columns of numbers represent. Later, the spreadsheet can use these labels as part of your graphs or to "name" ranges of cells for easy reference.

This style of determining what type of data is being entered has one minor problem with cell references. Since a cell address begins with an alphabetic letter (columns A-IV), the spreadsheet will determine that you're entering a label. Therefore, to enter a cell address as the first item in a cell, precede the cell name with a plus sign (+). For example, if you want to add two cells, instead of using the formula "A1+B1", use "+A1+B1". There are a couple of exceptions which we'll now cover.

The built-in formulas all begin with an "@" symbol, which the spreadsheet understands as a special case, such as @SUM(A1..B1). Absolute cell references use the "\$" symbol, which the spreadsheet knows to be a value -- more on absolute cell references in the Advanced Tutorial.

USING THE F9 KEY (RECALCULATION) WHEN ENTERING VALUES

When entering a value, you can express it to the spreadsheet as an equation. Instead of entering 8542 into a cell, you could enter the equation used to produce that number, for example, in cell B1 you have the formula "+A1*C1+D3" which multiplies the value of cell A1 by the value of cell C1 and adds the value of D3 to that result. For most worksheets, one or more elements of an equation are likely to be changed, in which case you would benefit by leaving the contents of that cell as a formula.

If the result of a formula will never change, it's a good idea to reduce it to a final value before storing it in the cell. When there's a formula of any kind in a cell, the spreadsheet must recalculate it each time the worksheet is recalculated. Although the delay is minor, they can add up in a large worksheet. When you want to reduce an equation to a single value, type in the entire equation, but DO NOT press the

Return key or one of the direction keys. While your input is still in the data entry area, press the F9 function key; the spreadsheet will calculate the equation and replace it with a single value.

RULES FOR ENTERING NUMERICAL DATA (VALUES)

The following rules apply when you enter numbers into a worksheet:

- A number can start with a digit (0..9), a plus "+" (positive) or minus sign "-" (negative), or a period "." (decimal).
- A number can have only one decimal point.
- You cannot use commas or spaces when entering a number.
- Scientific notation is accepted when you end the number with the letter E, a plus or minus sign, and a one- or two-digit number which serves as the exponent to the base 10 (such as, 12e+32 or 14E-10). The spreadsheet displays numbers in scientific notation when the cell width is insufficient to display all significant digits.
- Numbers may be entered as a percentage by using the percent sign "%" symbol. This has the same effect as dividing the input by 100. For example, an entry of "9%" is the same as ".09".

ENTERING LABELS INTO CELLS

If you begin your cell entry with a character not in the value list, the program determines that you are entering a label. When you enter a label, you can enter one of four special label prefix characters. They are:

Prefix	Action
' (apostrophe)	left justified - flush with the left side of the cell.
" (double quotes)	right justified - flush with the right side of the cell.
^ (caret)	centered - will appear in the middle of the cell.
\ (backslash)	repeating label - repeats whatever character appears after the "\" for the entire width of the cell.

The default label prefix is the apostrophe ('), unless changed with the spreadsheet command menus. If you do not enter a label prefix, your entries will be left justified. The backslash prefix causes the label to repeat until it has filled the entire cell. This prefix is often used to create underlines or dividers of some kind within the worksheet. For example, if you enter the label \ - in a cell, that cell is completely filled with hyphen characters. The advantage of using this prefix is that if you change a cell's width, the repeating label adjusts to keep the cell filled.

If you have a label that starts with a number, begin the label with one of the label prefixes listed above before entering the label. The label *1ST* would have to be entered as "1ST (including the quote), which would right justify the label. The principle is the same for any other positioning; '1ST and ^1ST will work just as well.

The label prefix is stored as part of the cell's contents, and can be displayed or edited later by positioning the cell pointer to that location. The spreadsheet uses the label prefix to align the label each time the cell is re-displayed. This character is NOT displayed in the worksheet, all you will see is the label properly aligned.

What happens when a label is longer than the width of the cell it is typed into? If the cell to the right of the one containing the long label is empty, the long label will "borrow" space. As soon as you enter data into that neighboring cell, or if it already contains data, the long label

will be chopped off at the cell's normal width. You may then increase the column width, if you want to display the entire label (more on column widths in the Advanced Tutorial).

VALUE MODE VERSUS LABEL MODE

We've discussed entering values and labels, let's now look at the reasons for making a distinction between the two. The spreadsheet has to differentiate between them, since one is a number to calculate and the other is only a series of characters to display.

When entering numbers or formulas, the spreadsheet uses the direction keys to "point out" a range of cells to be used in that calculation. When entering labels, the direction keys are used for editing within that label. We'll get into detail on the point mode when we cover entering formulas.

ENTERING FORMULAS INTO CELLS

What makes up a "formula"? Formulas perform calculations on numbers entered as part of the formula, calculations on the contents of other cells in the worksheets, or a combination of both. Look again at our practice spreadsheet.



The spreadsheet allows you to perform calculations on a number in one cell with a number in another cell by using a formula. To add the figure in cell A1 to the figure in cell B1 and have the results appear in C1, move the cell pointer over cell C1 and type:

+A1+B1

then press the Return key. The spreadsheet adds the two figures and stores the result in cell C1.

The leading plus sign (+) informs the spreadsheet that you are entering a value and not a label. We reviewed this in the "entering values" section.

	A	B	C	D	E	F	G	H
1	11	66	77					
2	22	77						
3	33	88						
4	44	99						
5	55	10						
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								

You could have also entered the formula "11+66" into cell C1, and come up with the same results, but that would be duplicating work. After all, you've typed those numbers in once already, why do it again? Instead of telling the spreadsheet which numbers to add up, tell it where to find the numbers to add. There's an even more important reason for using the cell references instead of the numbers.

Any time you make changes to cells referenced in a formula, the cell containing the formula is automatically updated when the worksheet is recalculated. Refer to the sample spreadsheet above. If we changed the number in cell B1 to 77, then the number in cell C1 would change to 88. This could have easily been done by hand, but the point is, we didn't HAVE to!

MATHEMATICAL OPERATORS

You can instruct the spreadsheet to perform simple computations on your data using the following mathematical operators:

^	Exponential calculation
*	Multiplication
/	Division
+	Addition
-	Subtraction

They are listed in order of precedence (which calculation would be performed first). To multiply the contents of cell A1 by 1.05 (which increases the value by 5 percent) and store the results in cell A2, you could move the cell pointer to cell A2 and type in the formula:

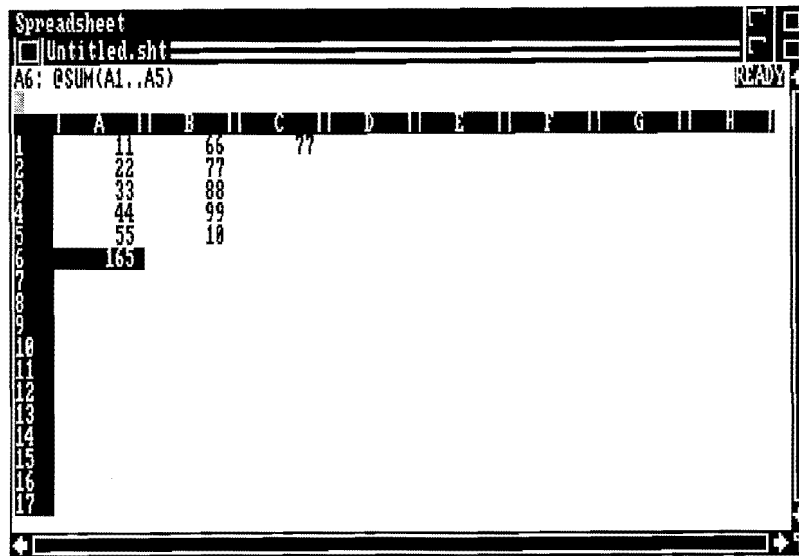
+A1*1.05

More complicated tasks can be performed with built-in functions known as @functions (pronounced "at functions"). Let's take one of the most commonly used functions as an example, @SUM. This function adds a range of cells. To demonstrate it, we'll make use of the practice sheet containing the two-digit numbers you entered earlier. Place the cell pointer at cell A6 and enter the formula:

@SUM(A1..A5)

and press the Return key.

The total of the 5 figures appears in cell A6. The complete list of @functions, with examples, are described in Chapter 24. If you've been following along, your worksheet should look similar to this:



ENTERING CELL REFERENCES IN FORMULAS: TYPING VERSUS POINTING

In both of the formulas entered, we typed in the cell references. The spreadsheet allows you to "point" to the cells on the screen and let the spreadsheet enter the cell references for you.

This is useful when entering a cell "range" (cell ranges are discussed in detail in the Advanced Tutorial, the next chapter of this manual). Even when pointing out single cells, it is often easier to "point" at the cell than try to determine the cell address visually and type in the address with the F5 GOTO function key; with the mouse, the spreadsheet makes pointing to cells a snap.

You want to add the contents of cells A2, B4, and C1 and store this result in cell D1. The first step is to position the cell pointer to the location where you want the formula stored, in this case cell D1. Next, enter a "+" symbol to let the spreadsheet know that you're

entering a value or formula. Instead of typing the cell coordinates, press the left arrow key. The cell pointer should move to cell C1, the Status Indicator should change to display POINT and the data entry area should now show "+C1". Continue to use the direction keys until the cell pointer is located at cell A2. Notice that the cell address in the upper left hand corner of the window changes each time you move the cell pointer.

When the cell pointer is over cell A2, type another "+" symbol. The cell pointer should have returned to cell D1, the Status Indicator should read VALUE again and the data entry area should show "+A2+". That is how you point out cell address using the arrow keys. Wait, there's an even faster way.

Move the mouse pointer until it points to cell B4. Press the left button once. The cell reference B4 should appear in the data entry area (e.g. +A2+B4). If you should happen to get the wrong cell coordinate, press the BACKSPACE key to erase the "B4", and try again. Type another "+" symbol and repeat the sequence to select cell C1. The data entry area should now read "+A2+B4+C1". Press the Return key. Your spreadsheet should look like this:

	A	B	C	D	E	F	G	H
1	11	66	77	198				
2	22	77						
3	33	88						
4	44	99						
5	55	10						
6	165							
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								

The POINT mode can be used to enter an entire range of cells and will be discussed in the Advanced Tutorial (next chapter). How does the spreadsheet know to enter the POINT mode, as opposed to using the direction key as a signal to enter the data and move the cell pointer? It depends on the last character entered. If it's a character like "+", "-", "(", or "=", the spreadsheet enters the POINT mode when you press a direction key. When the spreadsheet sees that a cell reference will appear next in the formula, it will enter the POINT mode when you press a direction key. The mouse, of course, is a different case. Whenever you're entering a formula, point at a cell, press the left mouse button and that cell coordinate will be entered into the formula.

LOGICAL OPERATORS

The spreadsheet permits logical or conditional statements that test for relationships between values and return either a TRUE or FALSE result. This result can be useful when combined with some of the @functions.

You could store the formula 56=B5 in cell A1. Then, whenever cell B5 contained the value 56, cell A1 would contain a non-zero value (-1 = TRUE). At all other times, cell A1 would contain a zero (0 = FALSE) value.

If a statement is TRUE, its value is non-zero (-1) or @TRUE. FALSE statements have a zero (0) value or @FALSE.

The spreadsheet recognizes the following mathematical operators:

=	equal
<	less than
<=	less than or equal
<>	not equal
>	greater than
>=	greater than or equal

Compound Conditionals (lower precedence):

#NOT#	logical not
#AND#	logical and
#OR#	logical or

These conditionals are useful when used in combination with the @IF function. (See Chapter 24, Mathematical Functions.)

EDIT MODE

Everyone makes mistakes. In a spreadsheet, mistakes are costly and must be corrected at the first opportunity. The idea of having to re-type a large label or a complicated formula, because it was entered improperly, is not a pleasant one. To help minimize this, the spreadsheet has a powerful "edit mode" that can be used when an error occurs.

If you make a syntax error (by entering an improper @function or illegal use of a mathematical operator), the spreadsheet will sound a tone and place cursor at the point in the formula where it detected an error. Otherwise, an "Error!" message will appear. For example, the value "5/0" would just cause an "Error!", without a warning tone, because it involves division by zero. Enter the following **incorrect** formula as an example:

@SUMA1

a tone will sound and place the cursor on the "A", since the @SUM function is looking for an open paren. Until the error is corrected, any attempt to move to another cell will cause a warning tone and the incorrect entry will remain displayed in the data entry area. You will remain in the edit mode until the entry is changed to one recognized by the spreadsheet as being correct. Pressing the Return key when the entry has been corrected will cause the label, value or formula to be stored where the cell pointer is located.

The edit mode is also used to change information in existing cells (although you can also enter the edit mode while you're entering data - more on this later). To enter the edit mode, move the cell pointer until it highlights the proper cell and press the F2 function key. The current contents of the cell will display in the data entry area with a cursor positioned at the end of the value, formula or label. Now, you are free to make changes. Here are some examples:

- You enter a long label and notice that there is a misspelling in the third character position. Press the F2 function key to make the change without retyping the whole label.
- Use the Edit mode to change a cell or range reference in a complicated formula.

EDIT MODE EXERCISES

Put the cell pointer over position A6. Type in the formula:

+A16**

This will cause a warning tone with the cursor shifting position to the second "*" in the formula. Press the Del key to remove the incorrect mathematical operator and press the Return key to have the spreadsheet accept the formula.

Place the cell pointer over cell A6 and press the F2 function key. When you enter the Edit mode, the cell contents are placed in the data entry area (the area below the cell coordinates). The cell pointer is positioned to the end of the text and the status indicator changes to EDIT.

When the spreadsheet is in the Edit mode, the arrow keys operate differently than in the Ready mode, since they're now moving the edit cursor within the data entry area instead of the cell pointer within the worksheet. They are defined as follows:

Key	Movement
Left arrow	Moves the cursor one character to the left.
Right arrow	Moves the cursor one character to the right.
Shift-Left arrow	Moves the cursor to start of line.
Shift-Right arrow	Moves the cursor to end of line.

The Backspace key moves the cursor one position to the left and deletes the character in that position. The Del key deletes the character under the cursor. The Esc key moves the cursor to the beginning of the line and erases everything in the entry area. There is no need for an insert key function, because the spreadsheet is ALWAYS in the insert mode when editing cell contents; data at the cursor is moved to the right.

Use the arrow keys to move the cursor left and right. The cursor highlights each character when it is located over it. Edit the formula to read @SUM(A1..A5) and press the Return key to leave the Edit mode. Cell A6 in the worksheet will reflect the total of all the numbers in cells A1 through A5. If you've been following along, the total will be 165.

Any time you complete your editing, there are several choices available:

- Press the Return key and the system restores the edited information to the cell and leaves the cell pointer at that location.
- Press one of the cell pointer direction keys, like the up and down arrows, or the Shift-up and Shift-down arrows. The system enters the information into the cell and the cell pointer moves to the new location.
- If you enter the Edit mode while entering data in either the Value or Label mode, return to these modes by pressing the F2 function key a second time.

That third item brings up the question of using the edit mode when entering a value or label. When the spreadsheet is in either the LABEL or VALUE modes, typing any of the direction keys will immediately terminate the input and move the cell pointer. If you see that you've made a mistake in your entry, you can press the F2 function key and enter the edit mode, correct whatever the error is, and press the F2 function key a second time to return to whatever mode you were in and finish your input.

USING F9 KEY (RECALCULATE) IN EDIT MODE

When the spreadsheet is in READY mode, pressing the F9 function key will have it recalculate every formula in the worksheet. However, when the spreadsheet is in the EDIT mode, pressing the F9 function key will calculate the value of the current cell only. This can be used to reduce formulas that will not change their values, so the spreadsheet doesn't have to recalculate them all the time. For example, the formula "10*@PI". The value of @PI never changes, but each time the worksheet is recalculated, the spreadsheet has to find that value once again. If you put the cell pointer over that cell and press F2, you will see the cell contents appear in the data entry area. By pressing F9, the formula is replaced its calculated value. You can press the Return key at that point, and store the value in the worksheet. Until you press Return, the formula can be recovered by deleting the value of the formula with the Esc key and pressing F2 again.

CHANGING WINDOW SIZE

The amount of the worksheet that can be displayed at any one time is determined by your window size. Select the sizing device in the lower right-hand corner of the window with the mouse pointer and hold down the left mouse button. The border of the window will change color. Continue to hold down the left mouse button and move the pointer toward the top left corner of the screen. The line you see becomes the new window border when you release the left mouse button.

When you have finished practicing with the sizing device, return the borders to normal.

If you have more than 512K memory installed, you can run more than one copy of the spreadsheet at a time. Since the spreadsheet windows are all on the Workbench screen, when you shrink the visible window, you'll be able to see any additional windows that exist.

THE COMMAND MENUS

You can use the mouse for a variety of tasks, such as positioning the cell pointer and pointing out cells when building formulas. Perhaps none of the functions done by the mouse are as important as selecting menu commands.

To see the commands available to you, hold down the right mouse button. The title bar at the top of the window is replaced by the spreadsheet command menu.

The spreadsheet command menu:

Project Worksheet Range Calculate Sort Graph Print

Each name in the command menu is a separate menu. Continue to hold down the right mouse button and move the mouse pointer over the menu names. When the mouse pointer touches a name, a menu will pull-down from the title bar. To select a command on one of these menus, move the mouse pointer down the menu. As you move the mouse pointer through the menu, each command will be highlighted.

Some of the commands will produce a pop-out menu of their own with further options on them. You can highlight the options on this submenu by moving the mouse pointer to the right of the first menu.

When you highlight the command or option that you wish to access, release the right mouse button. The command or option highlighted will be processed. If you want to execute more than one command from the spreadsheet menus, highlight a command and press the left mouse button (while continuing to hold the right). Each time you press the left mouse button, you add another command to the list of items which will

be processed when you release the right mouse button.

When selecting multiple commands, select the LAST command by highlighting and releasing the right mouse button. This will avoid selecting the last command twice. If you should happen to select a command with the left button and realize that you're done, move the mouse pointer completely off the menu so that nothing is highlighted and release the right mouse button to exit the menus.

In the same manner, if you display a pull-down menu and decide that you don't want to select anything, be certain to pull the mouse pointer off the menu before releasing the right mouse button. Remember, if nothing is highlighted, nothing is done.

If you select a command that requires additional input, the spreadsheet displays a prompt at the top of the window under the title bar, or a requester. When this occurs, enter the requested information and press the Return key.

KEYBOARD COMMANDS

The program supports ALL menu items through keyboard commands. These same keyboard commands are used with our Macro Language, which will be explained in Chapter 14B.

Keyboard commands are simple to use. To access any menu item from the keyboard, instead of the mouse, press the "/" key, which is located directly to the left of your right Shift key. You can now either use the arrow keys to highlight the menu item, or can type the menu item initials.

When you type the slash "/", a command line will appear directly below the title bar with the following options:

Project Worksheet Range Calculate Sort Graph Print

Notice these are the same menu items that appear when using the mouse pointer with the pull-down menus. When the menu items are selected with the menu mode, the pull-down menus will be ghosted (the

menu items will appear to be 'faded'). Anytime a menu item is ghosted, it cannot be accessed.

You may have noticed that duplicate initials exist in several menu sequences. Nothing special must be done to access the first occurrence of the initial. Any successive occurrence must be preceded by a number representing the position of that occurrence in the menu. For example, to access *Project Save*, use /PS; to access *Project Save As*, use /P2S. If you want to select *Print Go Printer*, use /2PGP; to select *Print Graph*, use /2P2G.

Worksheet will be highlighted. Use the right and left arrow keys to move to each of the menu items. To select a menu item, press the first letter of the menu items' name, or press the Return key when the appropriate menu item is highlighted. Notice that no two menu commands can ever be accessed with the same keyboard combination, allowing you to enter the commands from the keyboard without fear of accessing the wrong command.

Move the highlight bar to "Calculate" and press the Return key, or press the letter "C" from the keyboard. The following sub-menu will appear:

Method Order Iteration Alert

These are the same options available as if you had displayed the Calculation menu with the mouse pointer. Select "Alert" by highlighting the selection and pressing the Return key, or press the letter "A" from the keyboard. The last options will display:

Enable Disable

Select "Disable". The menu commands will disappear since the item has been selected. With 4 keystrokes, you have negated the need for removing your hands from the keyboard and using the mouse to accomplish the same thing. For those of you with a fear of mice, this powerful feature of the spreadsheet will be a welcome one.

Use the mouse pointer to pull down the "Calculate" menu. Move the highlighted bar down to "Alert". A pop-out menu will appear with "Enable" checkmarked. Selections such as this, when made through the keyboard, will be automatically updated on the pull-down menus.

If you select the wrong menu item, press the Esc key to take you one menu level backwards. Pressing the Esc key several times will drop you out of the menu mode altogether.

IMPORTANT

When an initial is used more than once, you must precede that initial with its position number. To choose the *Print Range* command from the keyboard, press /2PR. To select *Graph Labels Group* from the keyboard, press /G2LG.

SAVING WORKSHEETS

Just as the most important function of the mouse may be selecting commands from the menus, perhaps the most important menu commands are *Project Save* (and *Project Save As*) and *Project Open*, which save and load your worksheets to and from diskette.

This is the last of the "basics" you need to master when using the spreadsheet. It stores your worksheets permanently, so you can load and use them later. To accomplish this, see *Using The File Requester* in Chapter 4, "Common Operations".

CHAPTER 10B

SPREADSHEET ADVANCED TUTORIAL

The Advanced Tutorial acts as both a tutorial and a reference guide. The first few paragraphs briefly describe the topic. The tutorial portion elaborates on what you are familiar with from reviewing the last chapter.

In the last chapter, the Beginner's Tutorial, you became acquainted with the basic elements of using the spreadsheet. Moving the cell pointer, entering data into cells, and loading/saving worksheets were all subjects covered. In this chapter, we'll get into some of the "power" areas of the spreadsheet. Items such as using ranges, worksheet global settings, cell formatting and sorting will be covered.

You shouldn't begin working with this chapter until you're comfortable with all the items in Chapter 10A, as it will make the material covered here easier to understand. It is likely that you'll have a hard time understanding what a range of cells is, if you don't already know what an individual cell is and what it's used for.

COPYING WORKSHEETS

Good data management techniques call for frequent backups of your important data. Most computer equipment is reliable and it's rare that you lose data. This impression of reliability should always be weighed against the amount of time and trouble you'll be forced to go through if you lose your work. Some of the more common instances of trouble are not caused by equipment failure at all; what if a power interruption occurs. If you've got a worksheet for your company on only one diskette, what would happen if you misplaced that diskette? Or what if someone spilled a cup of coffee into your disk holder? Multiple backups are important!

Good practice dictates always having more than one copy of important

worksheets. This brings us to the subject of how you go about making backup copies of your worksheets.

The first and obviously most simple method is to just backup the entire diskette with *DiskCopy*. Sometimes this is not the preferred method as it is time consuming to backup an entire diskette that contains a single file, especially a small one. If you ARE working on a whole series of files relating to a particular job, it is more convenient to keep them all on the same diskette and backup that diskette after each session.

There are three ways to make a backup copy of an individual file:

- Copy the file using its icon from **Workbench**.
- Copy the file using its filename from **CLI**.
- Copy the file using the spreadsheet's File Requester.

In the first case, copying the file from **Workbench** is a simple procedure. To copy a file from **Workbench**, select the file's icon from one diskette's window by pressing the left mouse button while the mouse pointer is over the icon and drag it to another diskette's window. Your *Amiga User's Manual* contains a complete description of copying files from **Workbench**, if you have any questions. To locate a particular worksheet, look through the worksheet icons until you find the one with the proper name below it. That is your file's icon.

If your **Workbench** window contains many project icons, not all may be displayed within the window. It may be necessary to scroll through the **Workbench** window or increase the window size so all the icons can be viewed.

The second case, copying the worksheet file using **CLI**, can take two forms, depending on how many disk drives you have. If you have only one disk drive, you'll need to copy the file using *volume names* (a "volume name", as mentioned in the last chapter, is the name you give your diskette when you format it). Using *volume names* allows the Amiga to prompt for the proper diskette at the proper time, so you can

swap them. Let's assume that the diskette in drive DF0: is named "WORKSHEETS" and it contains a file called "PROFIT.SHT" which you need to backup. The first step is to prepare a backup diskette, if you have not done so already, making sure that the name is "BACKUP". If you are not in CLI, select the "System" drawer from the **Workbench** window and press the left mouse button twice when the mouse pointer is located on the icon named CLI. A CLI window will appear over the **Workbench** window. The command to copy the file then becomes:

Copy WORKSHEETS:Profit.Sht To BACKUP:Profit.Sht

Substitute another volume name if you do not have one named "BACKUP". The Amiga will prompt you for each diskette with a **System Requester**, as needed.

If you have two disk drives, you have an additional option, since it is possible for you to copy the file without switching diskettes during the procedure. For example, the diskette in DF0: is your the spreadsheet program diskette and it contains a file called PROFIT.SHT that you are backing up. The command becomes:

Copy WORKSHEETS:Profit.Sht To BACKUP:Profit.Sht

or

Copy DF0:Profit.Sht To DF1:Profit.Sht

The first example works with one or two disk drives while the second method is used when you do not know the diskette volume names (although you can discover those with the Info command from CLI). "DFx" is the drive name, where "x" is the drive number. When you use the **drive name** in a filename (like we did above), it is saying "I want to use *THIS drive* no matter what *diskette* happens to be in it". Using the **volume name** says "I want to use *THIS diskette*, no matter in which *drive* it happens to be located".

Single drive users **MUST** use the volume names, since they'll have to

swap diskettes during the copy. Multiple drive users have the option of using the drive names since they could copy the file without swapping diskettes during the copy. Multiple driver users CAN use the volume names without trouble. We only brought up the case of the drive names to show you an option multiple drive users have if they forget what they named the diskettes when they formatted them.

In the third case, copying the worksheet through the spreadsheet File Requester, the procedure breaks down into the following steps:

- Select *Open* on the *Project* menu.
- When the File Requester appears, select the file you want to copy with the mouse by pressing the left mouse button when the mouse pointer is located on the proper filename.
- Select OPEN with the mouse pointer to load the worksheet or double-click the filename.
- Select *Save As* on the *Project* menu.
- When the File Requester appears, if you need to insert the backup diskette, please do so. Then select the "Directory:" input area and enter the drive name or diskette volume name and press the Return key. The spreadsheet will display the filenames for the new drive/directory.
- Select the "Selection:" input area, enter the worksheet name and select the SAVE gadget with the mouse pointer.

Using one of the above procedures, copy RAND.SHT and call the copy SALES.SHT. Select the *Open* command on the *Project* menu and verify that the File Requester now includes RAND.SHT and SALES.SHT. Select SALES.SHT with the mouse and select OPEN to load SALES.SHT.

There is one other method of making backups of your worksheets. When calling up or saving the worksheet from the File Requester, include the drive name (DFx:) as part of the filename (*DF1:SALES.SHT*). This will force the sheet to be stored on that *drive* and will cause the program to ignore the *volume name* of the disk in that drive. Place the "original" disk in the specified drive, save the sheet; exchange the "backup" disk for the "original" disk, save the sheet. (This can be done for as many duplicates as you care to maintain.) If you use the F-8 key, the procedure is very easy.

WORKING WITH CELLS

The spreadsheet is made up of cells, as you should be familiar with by now. In the last chapter, we spent a lot of time learning how to enter data into these cells and moving the cell pointer around the spreadsheet. Using the spreadsheet's cells does not stop there.

In this chapter, we'll cover cell "ranges" and learn how they can make your life MUCH easier as you work with the spreadsheet. We're also going to discuss cell formatting. You'll learn how to make your worksheets visually appealing and informative.

The most important difference between this chapter and the previous is, in Chapter 10A, you learned to think of each cell on an individual basis by entering values or labels into a single cell. In this chapter, we're going to expand your focus to think about cells in groups (ranges). Although a worksheet is made up of cells, in practical use you will come to see that cells make up RANGES and ranges make up worksheets.

WHAT IS A "CELL RANGE"?

A cell "range" is any collection of cells in your worksheet that belong together. Normally, they would be related, but that is not a requirement. They **MUST** have no blank cells in them. Any empty cells will have a value of 0, while blank cells contain nothing at all.

A range is expressed in "range coordinates". These coordinates specify the upper left hand corner and the lower right hand corner of the range. When entered, this will be expressed as one cell address, followed by two periods, and the other cell address. The range that contains the cells A1, A2, A3, A4, and A5 would be written out "A1..A5". For example:

	A	B	C	D	E	F	G
1							
2	*	*	*	*	*		
3	*	*	*	*	*		
4	*	*	*	*	*		
5	*	*	*	*	*		
6	*	*	*	*	*		
7							
8							
9							
10							

We've placed an asterisk in every cell location that would be described by the range A2..E6. Another example:

	A	B	C	D	E	F	G
1		*					
2		*					
3		*					
4		*					
5		*					
6							
7							
8							
9							
10							

This time, the asterisks appear in the range B1..B5. Another example:

	A	B	C	D	E	F	G
1							
2							
3							
4	*	*	*	*	*	*	*
5							
6							
7							
8							
9							
10							

In this final example, the asterisks illustrate the range A4..G4.

USES FOR CELL RANGES

Cell ranges are used for a variety of things in the spreadsheet, but we thought it a good idea to detail a few of the more common ones here to help you understand range operations. Consider the following list:

- Duplicating or moving large amounts of information around the worksheet, rapidly
- Applying a similar cell format to a group of cells
- As an argument for one of the built-in @functions

In the following pages, we'll look carefully at all the areas of range operations which fall into these three categories.

COPYING CELLS AND GROUPS OF CELLS

To do this, you will need to use the *Copy* command on the *Range* menu. This command will make a duplicate copy of a cell range in a new

location. The cells in the original location will remain unchanged.

Select the *Copy* command on the *Range* menu, or press "/RC" from the keyboard. We discussed how to select menu items and keyboard commands in the previous chapter. If you are not sure how to do this, please go back and review that chapter again. When you select the command, you'll be prompted to enter the source and destination ranges. How you respond depends on whether you want to type in the range coordinates manually or use the point mode to indicate the ranges. Let's look at each.

ENTERING CELL RANGES MANUALLY

This is the fastest method if you already know the starting and ending points of the range you want to define.

- Select *Copy* on the *Range* menu. The following prompt appears:

Enter range to copy FROM: (Present address)

- Enter the coordinates that define the range which contains the information you want to copy and press the Return key. The current address will disappear as you begin typing. When you press Return, the following prompt appears:

Enter range to copy TO: (Present address)

- Enter the upper left hand cell address in the destination cell range and press the Return key. The information in the originating cell range is duplicated in the destination cell range.

Notice item #3 refers to entering only the upper left hand coordinate of the destination cell range. The spreadsheet will attempt to copy the specified cells in identical format to the source range. If you were copying a range of ten cells, located one above the other in a column,

the destination range would also be assumed to be organized the same way. A1..A6 could copy into D1..D6, but not B1..G1. Should you specify a destination RANGE, rather than a single cell, the spreadsheet will attempt to satisfy your request, which could produce some unusual results.

Earlier, we asked you to load the worksheet SALES.SHT. As we discuss items in this chapter, we'll be giving you examples using that worksheet. You may wish to load that worksheet now.

For SALES.SHT enter A1..A6 and press the Return key after the "Enter range to copy FROM:" prompt. Type C1 and press the Return key after the "Enter range to copy TO:" prompt. The information that was in cells A1..A6 is duplicated in cells C1..C6.

ENTERING CELL RANGES WITH THE POINT METHOD

When using the point method, you must first designate an anchor cell. The anchor cell is the first cell of the range you want to copy. If you specified a range of A1..A6, then cell A1 is considered to be the anchor cell.

- Move the cell pointer to the first cell of the range to copy and select *Copy* on the *Range* menu. That cell is now the anchor cell.
- Select the cell range. You can do this in one of two ways:
 - With the mouse: position the cell pointer at the anchor cell, press and hold down the left mouse button. Move the mouse pointer until the cell range is highlighted, then release the mouse button. To select a cell range that extends beyond the window display, move the paint roller as far to the direction you wish to

copy as possible, the window will automatically scroll to keep highlighting. To abort a highlight, move the paint roller to any of the four corners of the screen. You will be returned to the anchor cell location. Be careful when doing this, should part of the highlighted range be located near one of the corners of the window, it is quite easy to abort the cell pointer highlighting.

- With the arrow keys: position the cell pointer to the anchor cell. Press the appropriate arrow keys until the cell range is highlighted.

Experiment with these methods to see how you can expand the cell range. Notice that the cell range display at the top of the window changes as you move the cell pointer.

- When you have highlighted the cell range, press the Return key.
- Move the cell pointer to the first cell of the destination range and press the left mouse button.

Use this method to copy cell range C1..C6 to cell range D1..D6.

CHANGING THE ANCHORED CELL

To change the anchored cell with the keyboard:

- Press the arrow keys to move the cell pointer to the cell you want anchored.
- When the address of the cell you want to anchor is on the right side of the range display, press the period (.) key. This anchors the cell you selected. The cell address that was on the right side of the range appears on the left side of the range display.

To change the anchored cell with the mouse:

- Point to the cell you want to anchor and press and hold the left mouse button.
- Move the mouse pointer, while holding down the left mouse button, to expand the highlighted area to include the range you want to input. Release the left mouse button to enter the range.

To change the anchored cell on SALES.SHT, place the cell pointer on A1, then:

- Select *Copy* on the *Range* menu. Cell A1 is the anchored cell. Assume that you want to change the anchored cell from A1 to D1.
- Move the highlighted area until D1 appears as the coordinate on the right side of the range display. The screen looks like this:

Spreadsheet
☐ Untitled.sht
 Enter range to copy FROM: A1..D1

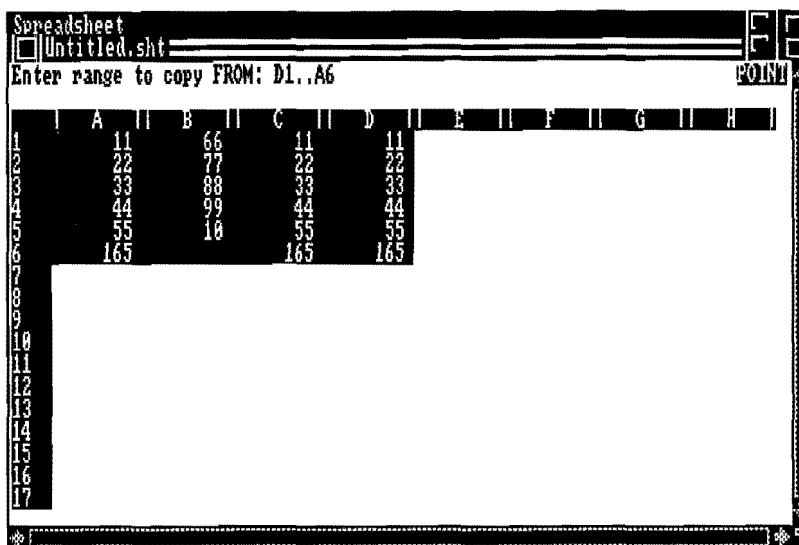
	A	B	C	D	E	F	G	H
1	11	66	11	11				
2	22	77	22	22				
3	33	88	33	33				
4	44	99	44	44				
5	55	10	55	55				
6	165		165	165				
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								

- Press the period key (.). The range display now looks like this:

Enter range to copy FROM: D1..A1

By pressing the period key, you changed the anchored cell to D1. The screen reflects this by moving D1 to the left side of the range.

Copy all the information on your worksheet. Expand the highlighted area to include all the cells in which you have entered numbers.



Press the Return key. Move the mouse pointer to cell E1 and press the left mouse button.

To the right of the original, the screen displays a duplicate of the cells you highlighted.

Move the cell pointer to E6. Remember the formula you entered to total the numbers in the A column? The spreadsheet changed the

formula. The formula now totals the duplicate of those numbers with the modified formula @SUM(E2..E5)

ERASING CELLS IN THE WORKSHEET

This function enables you to erase cells or a range of cells.

- Select the *Erase* command on the *Range* menu or "/RE" from the keyboard. The screen displays:

Enter range to erase: (Present address)

- Either enter the range to erase manually or use the point mode to highlight the area you want to erase.

Using the above procedure, erase columns E through H and rows 1 through 6 on SALES.SHT using the point method. The highlighted area should look like this:

Spreadsheet
☐ Untitled.sht
 Enter range to erase: E1..H6

	A	B	C	D	E	F	G	H
1	11	66	11	11	11	66	11	11
2	22	77	22	22	22	77	22	22
3	33	88	33	33	33	88	33	33
4	44	99	44	44	44	99	44	44
5	55	10	55	55	55	10	55	55
6	165		165	165	165		165	165
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								

Press the Return key to erase the highlighted range, or release the left mouse button if using the mouse pointer to highlight the range.

MOVING CELLS AND CELL RANGES

Moving cells is similar to copying cells. When you move cells, the cells at the original location are deleted. The arrow keys and the mouse operate the same way as described in the paragraph on copying cells.

- Select *Move* on the *Range* menu. The screen displays:

Enter range to move FROM: (Present Address)

- Enter the range you want to move and press the Return key. The screen displays:

Enter range to move TO: (Present Address)

- Enter the destination address and press the Return key.

Use the above steps to move a cell range on SALES.SHT. Enter A1..A6 as the range to move from. Place the mouse pointer at cell E1 and press the left mouse button. The cell range A1..A6 moves to cell range E1..E6.

Position the cell pointer at cell E6. Notice that the formula has changed to total the new cell addresses.

FORMATTING AND REORGANIZING

LABELING ITEMS IN THE WORKSHEET

Prepare your worksheet for this next exercise by erasing cells B1..E1.

The worksheet is much more useful if it is properly labeled. For Example, you want to display sales figures for your company (in

thousands of dollars) for the months of *January, February, March, and April*. The figures you entered earlier represent sales figures for your offices in *Denver, Fresno, Austin, and Toledo*.

- Place the cell pointer at cell B1 and type JAN, type FEB at cell C1, type MAR at cell D1, and type APR at cell E1. At cell F1, type YTD.
- Move the cell pointer to A2 and type DENVER. Press the down arrow and type FRESNO. Enter AUSTIN and TOLEDO in the same manner. At cell A7, type TOTAL.
- Select *Label* from the *Range* menu. On the submenu, select *Right*.
- The program prompts you to Enter range of labels: Enter B1..F1. The labels shift to the right side of the cells. Your screen display should look similar to this:

	A	B	C	D	E	F	G	H
1		JAN	FEB	MAR	APR	YTD		
2	DENVER	77	22	22	22			
3	FRESNO	88	33	33	33			
4	AUSTIN	99	44	44	44			
5	TOLEDO	10	55	55	55			
6			154	154	154			
7	TOTAL							
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								

UNDERLINES

Underlining helps make your worksheet easy to read and understand. In the previous chapter you created an underline in a single cell. To create underlining in a range of cells, follow the instructions below:

- Enter "\ -" in the first cell where you want the underline to appear. The backslash symbol informs the spreadsheet to fill the entire cell with the character that follows.
- Select *Copy* on the *Range* menu.
- The spreadsheet prompts you to:

Enter range to copy FROM: (Present Address)

Enter the cell where you typed the "\ -" (repeating dash)

- The system now prompts you for the destination range. Enter the range where you want the underline to appear.

To illustrate the use of underlines in SALES.SHT, create an underline at cell B6. Place the cell pointer at B6, then type "\ -" and press the Return key.

With the cell pointer at cell B6:

- Select *Copy* on the *Range* menu. If B6 is not shown, type it in and press the Return key.
- Select C6..F6 as the destination range, then press the Return key. An underline appears in cells B6..F6.

TOTALING RANGES

VERTICAL TOTALS

Now we'll do some calculations on the columns. The procedure for doing this is as follows:

- Enter the formula in a cell after the first of these columns.
- Copy the formula to the cells beneath the rest of these columns. The formula changes to calculate the cells at its new location.

Calculate the totals of the vertical columns on SALES.SHT. With the cell pointer at cell B7, enter the formula @SUM(B2..B5) and press the Return key.

Copy this formula to the other columns, using B7 as the range to copy from and press the Return key. When the spreadsheet prompts you to enter the destination range, enter C7..F7 and press the Return key. Notice that the totals now extend across the bottom of the worksheet.

HORIZONTAL TOTALS

Now we'll do similar calculations for each row. The procedure for this is as follows:

- Enter the formula in a cell after the first of these rows.
- Copy the formula to the rest of these rows. The formula changes to total the rows at its new location.

Calculate the horizontal totals on SALES.SHT. Place the cell pointer at cell F2. Enter the formula @SUM(B2..E2) and press the Return key.

Copy this formula to the range F3..F5. The rows and the columns are now totalled.

You have now created a business model that can be used for sales analysis. Suppose March sales for Austin came to 99 (thousand). Place the cell pointer on cell D4. Enter 99 and press the Return key. Repeat this procedure as often as you want, to illustrate the effect.

CURRENCY

To make the figures in your worksheet appear in currency (dollars and cents) format:

- Select *Format* on the *Range* menu. On the submenu, select *Currency*. You are then asked to:

Enter number of decimal places (0-14): 2

- In currency, you normally have 2 decimal places. Select 2 by pressing the Return key.
- You are now prompted for:

Enter range to format: (Present Address)

Enter the range you want to appear in currency format and press the Return key.

To show the currency format on SALES.SHT, refer to the above instructions to format the range F2..F5. Column F shows dollars and cents for each entry.

The currency format takes up space on the worksheet. If your numbers are too large to fit in the allotted space, the cell will fill with asterisks.

You can increase the cell area to accommodate more numbers. This subject is covered in depth in Chapter 21, under *Worksheet Column* command.

Practice with the currency format. Put cells B7..F7 in the currency format. Refer to the above instruction if you run into any difficulty.

CREATING A BAR GRAPH WITH + AND - SYMBOLS

Occasionally you may wish to illustrate your worksheet figures in a graphic form. To create a bar graph, follow the instructions below:

- Place the cell pointer one cell to the left of the column where you want the graph to appear. Type a number between -9 and +9. Negative numbers will appear in another color other than positive numbers. This color will vary depending on how you have your Preferences configured.
- Move the cell pointer down one cell and enter another number between -9 and +9. Continue to enter numbers in this column.
- When you are finished entering numbers, copy the numbers to the column directly to the right.
- Select +/- on the *Range Format* menu.
- You are prompted to:

Enter range to format: (Present Address)

Enter the address of the right column and press the Return key. Your graph now appears. Positive numbers are represented by a series of plus signs (+), and negative numbers are represented by minus signs (-).

To create graphs that reflect larger numbers, change the column width. Changing column width is discussed in Chapter 21 under *Worksheet Column* command.

Using the above steps, create a bar graph on SALES.SHT. Place the cell pointer at cell G2. Type a number between -9 and +9. Repeat this process for cells 3, 4, and 5 in column G. Notice that negative numbers appear in red on the worksheet.

Copy column G2..G5 to column H2..H5. Select the *Range Format* submenu and select +/- . Select the range H2..H5 as the range to format.

The graph in column H represents the values in column G. Your worksheet should look similar to the one shown below:

The screenshot shows a spreadsheet window titled "Untitled.sht" with a status bar indicating "H2: (+) 1" and "READY". The spreadsheet contains the following data:

	A	B	C	D	E	F	G	H
1		JAN	FEB	MAR	APR	YTD		
2	DENVER	77	22	22	22	\$143.00	1	+
3	FRESNO	88	33	33	33	\$187.00	3	+++
4	AUSTIN	99	44	44	44	\$231.00	4	++++
5	TOLEDO	10	55	55	55	\$175.00	2	++
6	TOTAL	\$274.00	\$154.00	\$154.00	\$154.00	\$736.00		

The bar graph in column H shows the relative values for rows 2 through 5. The bars are represented by plus signs (+). The values are 1, 3, 4, and 2 respectively.

Granted, this doesn't look as good as our own graphs, which will be covered in Chapter 14A, but are useful in some instances.

RESETTING FORMAT COMMANDS

To return the formats to their former appearance, select *Range Format Reset* from the *Range* menu or enter */RFR* from the keyboard. The system prompts you to:

Enter Range to format: (Present Address)

Enter the range you want to reset, and press the Return key.

Reset the currency format in column F of SALES.SHT. Enter the range F2..F5. Press the Return key. Column F now displays the numbers as they appeared before you changed them.

RANGE NAMES AND RANGE NAME LABELS

Range names are a way of keeping track of a range of cells when doing many functions.

Creating range names speeds your work when you want to copy a range of information. Remembering a range name is easier than having to enter the same range of cells all the time.

- Select *Range Name Create*. The system prompts:

Enter name:

- Enter the name you want to use for this range. Press the Return key. The system prompts:

Enter range: (Present Address)

- Enter the cell range you want to assign the range

name to and press the Return key.

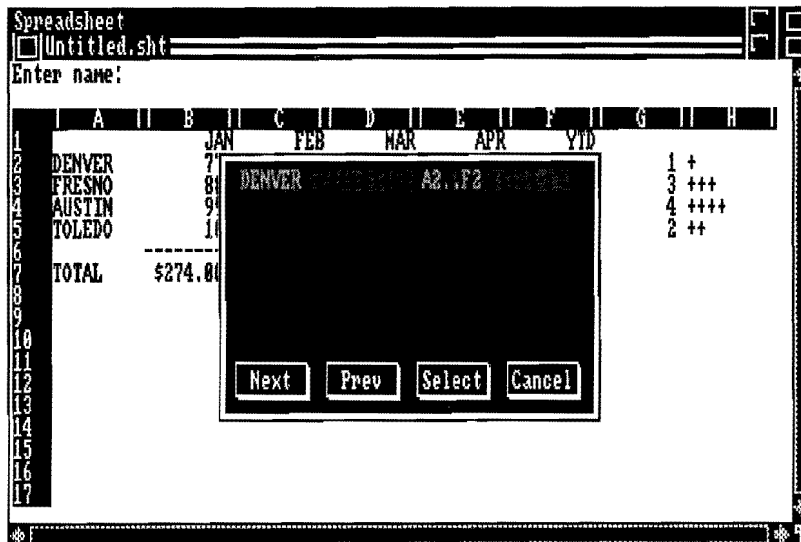
To name a range for SALES.SHT, select *Create* on the *Range Name* menu. The system prompts you for a name. Enter DENVER and press the Return key. You are prompted for the range. Since cells A2..F2 are associated with DENVER, enter A2..F2.

RANGE NAME REQUESTER

To display existing named ranges, press the <F3> function key whenever you select any of the *Range Name* commands, except for *Erase*. A requester will appear that shows the *Range Name* and the range of cells to which it refers.

To create a named range using the *Range Name* requester:

- Select *Range Name Create* from the *Range* menu and press the <F3> function key. The *Range Name* requester now appears on your screen. It looks similar to the following illustration:



- If a *Range Name* has not been previously defined, the <F3> key displays nothing. To create a new range name, select *Cancel*. The *Range Name* Requester disappears and you are prompted to:

Enter name:

- Enter the name you want to use for this range, and press the Return key. You are now prompted to:

Enter range: (Present Address)

- Enter the cell range you want referenced by the name you entered.

Continue to enter range names for SALES.SHT. Enter the ranges and range names for FRESNO, AUSTIN, and TOLEDO.

COPYING RANGES BY RANGE NAMES

One of the advantages of naming ranges is you can copy the entire range by using its name instead of the cell range it references.

- Select *Copy* on the *Range* menu.
- Press the <F3> function key. The *Range Name* Requester appears.
- Use the mouse to select the *Range Name* you want to copy, then choose *Select*.
- At this point enter the destination using the keyboard, or select the destination with the mouse. If you enter the destination with the keyboard, press the Return key. If you select the destination with the mouse and press the left mouse button on the Select gadget.

You may use range names to erase, or move ranges. Instead of

selecting *Copy*, you could select the *Erase* or *Move* command.

Range Names can be entered without having to select them from the *Range Name Requester*. Use the following procedure to copy Denver's sales figures to another location.

- Select *Range Copy*, and enter "Denver" as the Range to copy from. Optionally, you could press the <F3> function key, highlight "Denver" with the mouse pointer and then select the Select gadget. You are then prompted to enter the destination address.
- Move the mouse pointer to cell A9 and press the left mouse button. Denver's sales figures now appear in cells A9..F9.

WORKING WITH FORMULAS

CREATING A FORMULA

There are two kinds of formulas you can use in a worksheet:

- Formulas that perform calculations on specific cells. The formula `+A1+A2+A3` totals cells A1, A2, and A3.
- Formulas that perform calculations on a range of cells. `@SUM(A1..A3)` totals the cell range A1..A3.

In the above examples, the results of the calculations are the same, but they were reached using different methods.

The `@SUM` formula is an `@`function, which is discussed in more detail in Chapter 24.

RELATIVE AND ABSOLUTE FORMULAS

A relative formula is one that changes depending on its location. Formulas are always relative unless you change them to absolute.

An absolute formula is one that remains the same, regardless of its location on the worksheet. Flexibility is achieved because one coordinate may be absolute while the other coordinate is relative. To identify a formula as absolute, precede each coordinate with a dollar sign (\$). For example, the formula @SUM(B1..B5) is changed to @SUM(\$B\$1..\$B\$5). Other legal combinations include: (B\$1..B\$5) and (\$B1..\$B5).

COPYING FORMULAS WITH RELATIVE ADDRESSES

To copy a formula with a relative address:

- Select *Copy* on the *Range* menu or "/RC" from the keyboard. the spreadsheet prompts you to:

Enter range to copy FROM: (Present Address)

- Enter the cell address containing the formula you want to copy and press the Return key. The spreadsheet prompts you to:

Enter range to copy TO: (Present Address)

- Enter the range or cell you want to copy to. Press the Return key.

When you move a formula, it performs the calculation on the cell range you move it to. All formulas change to reflect the moved cell. If you move formula +A1+A2+A3 to column C, the formula changes to +C1+C2+C3. This is an example of relative addresses.

You already copied formulas with relative addresses on SALES.SHT. If you want to refresh your memory, review the section on WORKING WITH CELLS at the beginning of this chapter.

CREATING AND COPYING FORMULAS WITH ABSOLUTE ADDRESSES

To identify an absolute formula, precede each coordinate with a dollar sign (\$). For example, the formula @SUM(B1..B5) is changed to @SUM(\$B\$1..\$B\$5).

- Move the cell pointer to cell F7. The formula in this cell totals the earnings of your U.S. offices.
- Change this formula to absolute by inserting dollar signs, as shown below:

@SUM(\$F\$2..\$F\$5)

- Move the cell pointer to cell A13 and enter the label US OFCs.
- Copy the formula in cell F7 to cell B13.
- Select *Copy* on the *Range* menu. When the spreadsheet prompts you to enter the range to copy from, type F7. Enter B13 as the range to copy to.
- Move the cell pointer to cell B13. Notice that the formula still calculates the sum of cells F2..F5. Move the cell pointer to row E and change some of the values. Notice that cells F7 and B13 both change as you enter the new values. Your worksheet should look similar to the example below.

Spreadsheet
Untitled.sht
F7: (C2) @SUM(\$F\$2..\$F\$5) READY

	A	B	C	D	E	F	G	H
1		JAN	FEB	MAR	APR	YTD		
2	DENVER	77	22	22	22	\$143.00	1	+
3	FRESNO	88	33	33	33	\$187.00	3	+++
4	AUSTIN	99	44	44	44	\$231.00	4	++++
5	TOLEDO	10	55	55	55	\$175.00	2	++
6								
7	TOTAL	\$274.00	\$154.00	\$154.00	\$154.00	\$736.00		
8								
9	DENVER	77	22	22	22	\$143.00		
10								
11								
12								
13		\$736.00						
14								
15								
16								
17								

COPYING FORMULAS WITH RELATIVE AND ABSOLUTE ADDRESSES

Part of a formula can be absolute while the rest is relative. Refer to the above spreadsheet:

Assume that you have entered the formula @SUM(A1..B5) in cell B6. Assume that you also want to have a grand total, including columns C and D, with the total at cell D6.

- Place the cell pointer on cell B6 and press the <F2> function key.
- Insert a dollar sign in front of the A and in front of the 1. This makes A1 absolute; the cell address will not change no matter where it is copied. A relative address would change when it was moved or copied.
- Copy the formula from cell B6 to cell D6. The A1 remains fixed, while the B5 is adjusted to D5. The

result is a grand total of cells A1..D5.

To make D5 absolute, insert dollar signs in front of the D and in front of the 5.

While in the POINT mode, you can use the <F4> function key to toggle the cell references between relative and absolute. This can only be done in the POINT mode, not with the mouse pointer.

MOVING A FORMULA

Refer to the example worksheet in the section above. When a formula is moved, its condition is considered absolute. If instead of moving the entire A1..B6 work area, you moved cell D6 to location B11, cell B11 still displays the results of the unchanged formula @SUM(\$A\$1..D5).

MOVING CELLS REFERENCED IN A FORMULA

If you move the cells referenced by a formula, the formula changes.

Try this with SALES.SHT:

- Move the cell pointer to cell A14 and type the label JAPAN.
- Move the cell pointer to cell B14, and enter the number 2000 to represent your sales in Japan.
- Move the cell pointer to cell A15 and enter TOTAL.
- Move the cell pointer to cell B15 and enter the formula +B13+B14. Press the Return key.
- Move cells A14..B14 to cells D13..E13. Notice

that the total in cell B15 does not change. Move the cell pointer to cell B15 to see why. The formula has changed to allow for the new location of the sales for Japan.

PROTECTING AND UNPROTECTING ENTRIES

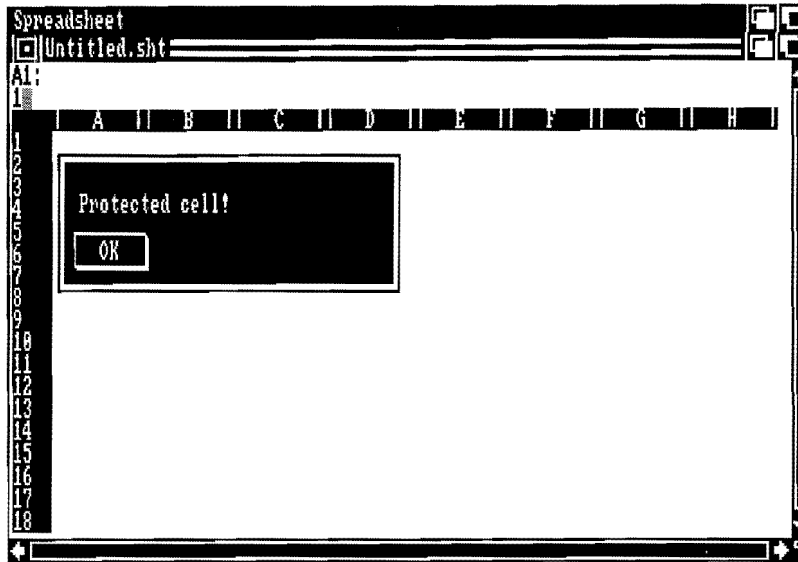
It is possible to accidentally delete a formula or cell entry with the *Copy*, *Move*, and *Erase* commands. To avoid such a catastrophe, the spreadsheet lets you *Protect* the worksheet.

To protect the entire spreadsheet, use the *Protect Enable* command on the *Worksheet* menu.

To gain access to the figures:

- Select the *Protect Disable* command on the *Range* menu.
- Enter the range you want to make changes to and press the Return key. You will be able to change only the range you selected.

Select the *Protect Enable* command on the *Worksheet* menu to protect SALES.SHT. You are now unable to change any of the values. When you try to change a cell, the screen displays:



Select the OK gadget to return to the spreadsheet.

To gain access to SALES.SHT:

- Select the *Protect Disable* command on the *Range* menu. You are prompted to:

Enter range to unprotect:

- Enter the range A9..F9 and press the Return key. You may now change any figure in the range A9..F9. Notice that when the cell pointer is over an unprotected cell, the input area displays a "U" in front of the cell contents.
- Erase cells A9..F9.

GLOBAL FORMAT COMMANDS

Global Settings are the settings that normally remain in effect at all times. You can override the global settings with Range commands.

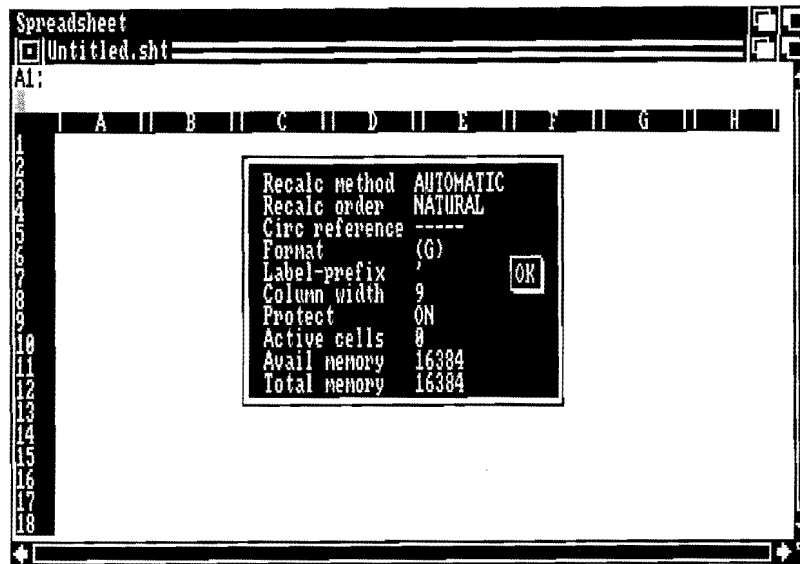
There are five areas that fall into the category of global worksheet format commands:

- Column width
- Numerical display format
- Label display format
- Protection enable/disable
- Recalculation options

These options are explained in Chapter 21, in the section dealing with the *Worksheet* and *Calculate* menus. Remember that the Global commands are always in effect for the entire worksheet unless you change them with a Range command.

GLOBAL STATUS

You can inspect the current Global command settings at any time with a pop-up status window. Select the *Info* command on the *Project* menu. The following screen appears:



You can use the *Project Info* display to inform you whether the Global Protect is on or off. Select the status command from SALES.SHT. Notice that the Protect is on. Select "OK" to return to the spreadsheet.

CREATING FIXED (NON SCROLLING) TITLES

When working with a large worksheet, your titles and labels move off the window as you scroll the display, which makes it difficult to keep track of where data should be entered.

You can fix the labels on the top and left side of the screen:

- Position the cell pointer at the top left number.
- Select *Vertical* on the *Worksheet Titles* menu and press the left mouse button. While still pressing the right mouse button, move the highlight bar down to *Horizontal* and press the left mouse button. Both

Vertical and *Horizontal* should now be checkmarked.

If you scroll to the right, the left most column is fixed, it will always appear in the window, no matter how many columns you scroll to the right. Notice that the column address also remains fixed. If you scroll down, the top row remains fixed, it will always appear in the window, no matter how many rows you scroll up or down.

Using the steps outlined above, fix the labels on SALES.SHT. Scroll to the right with SALES.SHT. Notice that column A stays fixed on the left side of your screen. Scroll back to the left until the months and numbers line up. Now, scroll down. The months stay at the top of your screen, and row 1 is fixed.

The rule of thumb for *Worksheet Titles* is: if selecting a *Horizontal* title, the row above the cell pointer will be fixed. When selecting *Vertical*, the column to the left of the cell pointer is fixed.

PRINTING A REPORT

There are three steps to printing a report:

- Choose the print options.
- Define the print range.
- Initiate the printing procedure to the printer or a file.

You can send a worksheet directly to the printer or to a file for printing at a later time.

You can print directly to the printer with the *Print Go Printer* command.

You can print to a file with the *Print Go File* command. You are prompted to enter the filename where the data should be sent. A file can be enhanced by using a word processor or text editor to add such

features as **bold printing** or underlining. Our word processor is such a program.

CHOOSING PRINT OPTIONS

The spreadsheet offers you a variety of print options. You can set up titles, establish headers and footers, or adjust the page length. You can establish the print formats independently from the display options. You can print formulas instead of values. See Chapter 21 of this manual for a complete list of all option commands.

DEFINING THE PRINT RANGE

You must specify the print range before printing, or the requester with the error message, "No range defined !!" will display.

- Select *Print Range*.
- When you are prompted to Enter Range, enter the coordinates of the range you want printed. You can enter coordinates for the entire spreadsheet or for a portion of the spreadsheet.

INITIATING PRINTING

The *Print Go File* command initiates the printing sequence. The print options, including ranges, are stored within the worksheet. Future reports need not be respecified. If you want to change the printer specifications on an existing worksheet, override the existing printer settings with the *Print Reset All* command.

Define the print options, such as headers, footers, margins, and the print range. Select *Print Go* to start printing.

Under *Print Options*, "*As-Displayed*" and "*Use-Margins*" are checkmarked. "*As-Displayed*" prints the worksheet as it appears on the screen. When it is not checkmarked, the cell address,

corresponding labels, formulas and values will be printed. "*Use-Margins*" will print a sheet using all the defined *PrintMargin* items and the *Print Options Header* and *Footer* items. Otherwise, these selections are ignored.

Select *Print Options Clear* to erase all items under the *Print Options* menu. From there, simply pick which options you wish available when printing your worksheet.

PRINTING TO A FILE

You may want to save a print image of a spreadsheet for printing at a later time. Once created, you can use a word processor to enhance the output.

Select *Print Go File* and enter the name of the file you want to print to. The spreadsheet generates a disk file using the print options you defined, including margins, headers, and footers. This file contains only ASCII data and should be compatible with any word processor or text editor. Any special attributes, such as boldfacing, underlining or italics will not be printed as part of the disk file.

When entering the disk file name, you may precede the filename with a drive/path or volume name/path. For instance, **DF1:TESTSHT.DOC** or **DATA:TESTSHT.DOC** are both valid entries.

PRINTER PREFERENCES

If your printout is not appearing as it should, make sure that you have selected the proper printer driver for your printer. This is done through preferences and is explained in your *Amiga User's Guide*.

For most printouts with the spreadsheet, set your left margin through preferences to 1 and your right margin to 255. This gives the spreadsheet a large enough margin that preferences does not interfere with the settings you have selected with the spreadsheet.

SORTING DATA

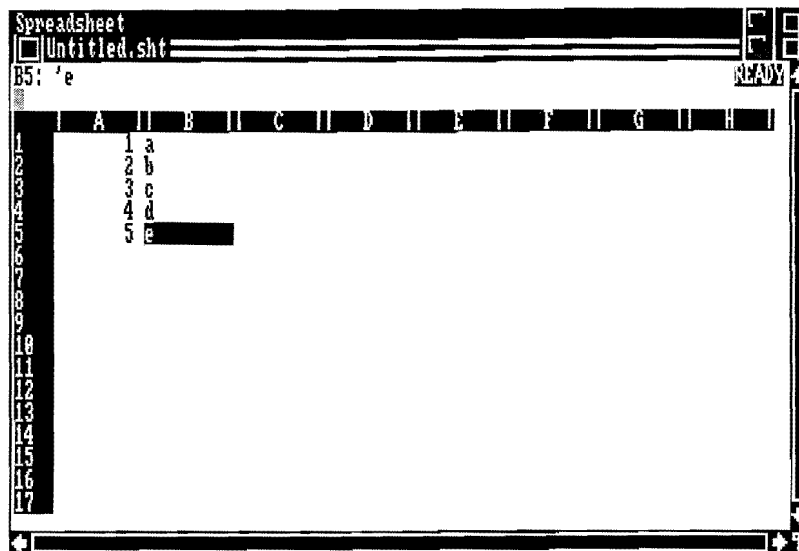
The spreadsheet has the ability to sort ranges of data. Data can include blank cells, labels or letters, numbers and formulas in either ascending or descending order. Sorting is done based on primary and secondary keys (columns).

Sorting is performed on a single Primary-Key (column), using an optional Secondary-Key (column). The Secondary-Key is used to determine which Primary-Key cell should appear first when both Primary-Key values are the same.

When sorting is performed, the cells in the Primary-Key column are sorted in the order you've specified. The sort precedence is as follows: blank cells, labels or letters and numbers and formulas, in ascending or descending order. In addition, the other cells that are within the defined sort range, and on the same row, are automatically moved. In effect, this keeps groups of data together.

This allows you to define a sort range that includes sales figures for several cities, sort the sales figures in ascending order and have all the pertinent information, like area name, etc., kept with the sales figure.

As an example, enter the following information:



Define the *Sort Data-Range* as A1..A5. The *Primary-Key* will be column A. The sort order will be "D" for Descending order. Do not define a *Secondary-Key*.

Select *Sort Go*. Notice the information in column B stayed where it was; only the data within the defined sort range was sorted.

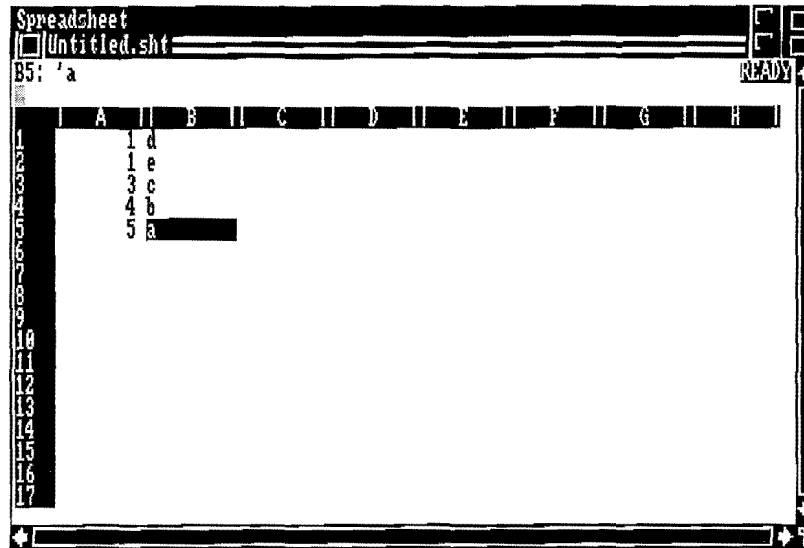
Now define a *Sort Data-Range* as A1..B5. Select column A as the *Primary-Key*. Sort in "A"scending order.

Select *Sort Go*. The numbers are back in the same order we started with and the letters adjacent also changed position. The reason they changed position was because the defined sort range included that column.

We have two cells with a value of 1. Select *Sort Secondary-Key* and enter column B. The sort order should be "A"scending.

The *Primary-Key* and *Secondary-Key* has to be within the defined sort range or a "Sort key out of range !!" requester will display.

Select *Sort Go*. The two letters next to the "1" will have switched position. This is the result:



The spreadsheet will remember your sort definitions until you select *Sort Reset* or *Project New*.

By now you should be familiar with how sort works and how increasing your sort range will cause the other cells within that range to move when *Primary-Key* column is sorted.

The more you practice with these examples, the more proficient you will become and better able to use the spreadsheet to its fullest.

CHAPTER 11A

CREATING A DATABASE

Database Management consists of several distinct processes. The first among these is creation of the database design. That will be covered in this chapter. In following chapters, data entry and retrieval, search patterns and report generation are covered. A detailed list of each menu item is covered in Chapter 22.

STARTING THE PROGRAM

If you are running the program from Workbench, all you need to do to start the database program is double-click on the *PLATINUM_WORKS!* icon, then, select the database program from the menu. You could also double-click on an *.env* icon. The *.env* icons are found in the *.db* drawers (directories). Should you decide to run the program from CLI, the procedure is equally simple. Type the name of the program, *PLATINUM_WORKS!*, and press Return. Then, select the database program from the menu.

Either way you choose to start the program, the result will be the same. The database program will boot up and a title bar will appear.

CREATING A DATABASE

Now we're ready to create a database. Hold down the right mouse button and select *Project New*. The following screen will appear:

The screenshot shows a window titled 'Untitled.env'. Inside, there is a table with four columns: 'Field', 'Name', 'Type', and 'Width'. The table is currently empty. To the right of the table, the following text is displayed:

Number of Fields : 0
Record Size : 0

Below this text are six buttons arranged in a 3x2 grid:

SUBMIT	RESUME
ERASE	ADD
DELETE	CHANGE

As you look across the top of the screen, you will see: "Field, Name, Type and Width".

FIELD Field number. Up to 128 fields are allowed for each database.

NAME Field name. Up to 10 characters are allowed for each field name. Letters and numbers are the only acceptable characters for fieldnames.

TYPE Datatype. Text, Numeric, Date and Yes/No. They control what kind of input is allowed for each field and they are defined as follows:

WIDTH Field width. Up to 254 characters for any Text field. The Numeric field has a

maximum width of 16, including decimal point. The Date field automatically defaults to 8 characters and the Yes/No field defaults to 1.

On the upper right-hand third of the screen you should see:

Number of Fields - this is the total number of fields in the current database. If no database is open, the number "0" will appear.

Record Size - the maximum size of any record in the database. The record size is the total of all the individual fields for that database. If no database is open, the number "0" will appear.

Below that appears the following selections:

SUBMIT Writes the information to disk. Used originally to create the database and then later when making changes, such as Adding, or Deleting fields.

ERASE Clears the screen of fields and allows you to start over from scratch. If erasing an already existing database, no changes are made to the original. If you have Submitted a database that you were working on, this lets you start working on a new one.

DELETE Removes a field from the database. No changes are actually made to the database until you have Submitted it. Highlight the fieldname and then select this gadget. A requester will prompt you to confirm the deletion. Take care when deleting a field, as all the information pertaining to

that field will be lost when you Submit the database.

RESUME

Exits you from the *Database Create* or *Database Change* mode. No changes to the database are saved unless you have Submitted them.

ADD

Adds a new field to the database. Up to 128 fields are allowed. No additions are saved until you do a Submit.

CHANGE

Changes an existing field. You would use this to increase the width of a field or change its fieldname. Changes can be made to new and previous databases. Extreme care should be taken when changing an existing database. Never attempt to change the datatype of a field, the conversion from Text to Numeric is not possible and all data for the fieldname would be deleted. If decreasing a field width, the data in the existing fields will be chopped off to match the new field width. No changes are saved unless you do a Submit.

Now select the ADD gadget with the left mouse button to start creating the database.

This screen will be displayed:

Field	Name	Type	Width

Add a Field

Name:

Text Numeric

Date Yes/No

Width:

Decimal:

Add Cancel

Across the top of the ADD requester you will see the header, "Add a Field". Below that is the field name prompt. Select that input prompt with the left mouse button and enter the fieldname "FIRSTNAME". Upper or lower case does not matter unless you wish your database to be dBASE III compatible, in which case, all fieldnames MUST be entered in UPPER case. (dBASE III is a popular database program for IBM and compatible computers.)

Below that the following field types appear:

Text This datatype accepts any alphanumeric characters (a..z and 0..9). Any illegal characters will cause an "Illegal field name" message to appear.

Numeric This datatype accepts only numbers, with two exceptions. If the fieldname contains a decimal value, then a period is

acceptable, otherwise it will be ignored. Minus signs "-" can be used to identify negative values. The maximum field width for a numeric character is 16, including decimal point.

Date This datatype accepts a date entry with the format "mm/dd/yy". The forward slash "/" appears automatically when entering the date.

Yes/No Also known as the logical "True/False" field. This field accepts only "Y" or "N" as a valid response.

Press the left mouse on the "Text" option. You will see a box appear around the word.

Underneath that box is the field width prompt. Select the box with the left mouse button and enter the number "15". Below is the Decimal prompt, which we can ignore at this time. At the bottom of the requester the gadgets, "Add and Cancel" are displayed. Select the Add gadget to add "FIRSTNAME" to the database.

The Add a Field requester will clear and the field information we entered will appear on the screen to the left. Now select the Name prompt and enter "LASTNAME". The data type selected is still Text, so we can continue past it to the Width field. Select that field with the left mouse button and enter the number "20". You'll notice that the previous field width was still there. Use the backspace, delete or Right-Amiga X key to clear the entry. This will aid you when having to enter many fields of the same data type and width. Now select the Add gadget and verify that the new field has been added. You should now see two entries on the left side of the screen.

Let's add a Middle Initial field to the database. While in most instances, it does not matter in what order the field names are entered, for this exercise we're going to insert a new field name

between FIRSTNAME and LASTNAME (purely for cosmetic reasons). Select the Cancel gadget at this time.

The screen should display the two field names entered. To the right, the "Number of Fields" should contain the number "2" and the "Record Size" should be "35". Let's see, $15 + 20 = 35$. That sounds right. Move the mouse pointer to LASTNAME and select it by pressing the left mouse button on that line. The field information will be highlighted. Now select the Add gadget.

An "Insert" gadget will appear in the requester. Enter "MI" in the field name prompt. Select the Text datatype and enter a field width of 2. Now select the Insert gadget. The MI field name has been inserted between FIRSTNAME and LASTNAME. You'll also notice that the LASTNAME field has been re-numbered to 3.

Now Add the following fieldnames:

Fieldname	Data type	Width	
COMPANY	Text	20	
ADDRESS1	Text	20	
ADDRESS2	Text	20	
CITY	Text	20	
STATE	Text	2	
ZIP	Text	10	
WORKPHONE	Text	13	
EXT	Numeric	3	
HOMEPHONE	Text	13	
AGE	Numeric	2	
DOB	Date	8	
ANN	Date	8	
CHILDREN	Yes/No	1	
EARNINGS	Numeric	9	Decimal 2
COMMENTS	Text	20	

"WORKPHONE" is considered a Text datatype because of the "()-" characters normally entered as part of a phone number. When you get

to "EXT", you'll select the Numeric datatype. "DOB" and "ANN" default to a column width of 8 when selecting the Date field. The "CHILDREN" field will default to 1 after choosing the Yes/No datatype. For the "EARNINGS" field, enter a 2 in the decimal input prompt. This represents the number of integers after the decimal point.

A brief explanation of some of the fieldnames: "EXT" is for a telephone extension number. "DOB" stands for date of birth, "ANN" is a wedding anniversary. The "CHILDREN" field looks for a "Y"es or "N"o. The other fieldnames should be self-explanatory.

Let's make a change to this database before we Submit it. Select the Cancel gadget and then select the "COMMENTS" field. Now select Change. The header should read "Change a Field" and all the fieldname information should appear within the requester. Select the Width field with the left mouse button and change the value from 20 to 64. When that is done, select the Change gadget. Selecting the Cancel gadget at this time would abort any changes you just made to the fieldname.

An important point to remember when selecting field widths for Text datatypes: While you are allowed up to 254 characters, only 64 characters can be displayed in the field at one time. If you try to enter the 65th character, the information in the field will start scrolling to the left. Therefore, we recommend keeping field widths to 64 characters or less.

If trying to Add fieldname information without the fieldname, an error message "Fields must have a name !!" will display. If trying to save a duplicate fieldname, the message "That name is in use !!" will appear

Your screen should now look like this:

Field	Name	Type	Width
1	FIRSTNAME	Text	15
2	MI	Text	2
3	LASTNAME	Text	20
4	COMPANY	Text	20
5	ADDRESS1	Text	20
6	ADDRESS2	Text	20
7	CITY	Text	20
8	STATE	Text	2
9	ZIP	Text	10
10	WORKPHONE	Text	13
11	EXTENSION	Numeric	3,0
12	HOMEPHONE	Text	13
13	AGE	Numeric	2,0
14	DOB	Date	8
15	ANN	Date	8
16	CHILDREN	Yes/No	1
17	EARNINGS	Numeric	9,2
18			

Names

Number of Fields : 18

Record Size : 250

SUBMIT RESUME

ERASE ADD

DELETE CHANGE

If you do not see this same listing, then you did not follow the procedures for adding new fields as outlined, and may need to re-read the instructions for Adding new names.

Assuming your screen does look the same, select the SUBMIT gadget. A requester will appear asking for the name of the database. The currently logged drive or volume name may appear with an ending colon. If no volume name displays, it means you are using the same drive the database manager was booted from. Erase the everything in the requester. Enter "Supplement:NAMES" (without the quotes, of course) and press the Return key. If all goes well, the message: "NAMES has been created !!" will appear. Select the RESUME gadget with the left mouse button.

Choosing a name that already exists, will cause a "Replace database?" requester to appear. When Changing an existing

database, an "Alter database?" requester will display. Changing databases will be dealt with later in the manual.

Select the RESUME gadget to quit creating. A requester will appear asking you to confirm this. Select the "OK" gadget to say "Yes".

Now that the example database has been created, we need to open it. The database manager does not automatically open a database when it is created, allowing you the flexibility to create more than one database at a time.

When you create a database, a directory (drawer) with the extension *.db* is created and within that directory, an environment file (with the extension *.env*) is created. It is the *.env* icon that is clicked to simultaneously start the application and open the database. From CLI, the *.env* filename, preceded by its directory name must be used to start **Platinum_Works!**, start the application and open the database.

The next chapter deals with data entry and indexing for your new database.

CHAPTER 11B

ENTERING DATA

Move the mouse pointer up to the *Project* pull-down menu and select *Open*. If you are logged into the *Supplement* disk, two names should appear: CHECKBOOK.db and NAMES.db. If you stored the example database on a disk other than your working copy of *Supplement*, log into that disk. Then NAMES.db should appear in the File Requester. Select the NAMES.db with the left mouse button. That name will appear in the "Selection" input prompt at the bottom of the requester. Now, select the GET gadget to load the database into the database manager.

The screen will clear and the fieldnames you entered earlier will appear on a new screen in the same order as they appeared when you Submitted them. The only difference will be the appearance of a colon after each fieldname. Along the bottom of the screen, a Record gadget will appear with ghosted scroll arrows.

Names.db

FIRSTNAME:
MI:
LASTNAME:
COMPANY:
ADDRESS1:
ADDRESS2:
CITY:
STATE:
ZIP:
WORKPHONE:
EXTENSION:
HOMEPHONE:
AGE:
DOB:
ANN:
CHILDREN:
EARNINGS:
COMMENTS:

Record 1 Adding New Records

The database manager automatically defaults to the Add mode when no records are found in the database. Let's add some sample records into the system. Enter the following:

FIRSTNAME: Chris
MI: M.
LASTNAME: DeBracy
COMPANY: Micro-Systems Software, Inc.
ADDRESS1: 127898 West Forest Hill Boulevard
ADDRESS2: Suite 202
CITY: West Palm Beach
STATE: FL
ZIP: 33414
WORKPHONE: (407)555-1234
EXT:
HOMEPHONE: (407)555-2345
AGE: 30
DOB: 08/23/58
ANN:
CHILDREN: N
EARNINGS: 32000.00
COMMENTS: Terrific technical author

If you try to enter more information than a field can hold, the screen will flash. When your screen looks like this, press a Right-Amiga X to save the record in the database. Or you can move the mouse pointer to *Form Record*. A pop-out menu will appear listing "Erase, Undo, Store, Delete, Recall, and Print". Select *Store*. The record is saved, your entry is cleared and the cursor moved to the first field, ready for the next record. Keep in mind that numeric fields will always default to "0" if nothing is entered and Yes/No fields will default to "N".

The Record gadget number will change from "1" to "2". The number displayed will be the next record number stored in the database. If you accidentally press the Right-Amiga X key twice, you will end up with a blank record. If you accidentally enter blank records, do not worry, they can be deleted later.

KEYBOARD COMMANDS

Keyboard	Function
Right-Amiga X	Save record
Right-Amiga E	Erase record from screen
Return	Move down a field
Down-Arrow	Move down a field
Up-Arrow	Move up a field
Shift-Up-Arrow	Move to top of Form
Shift-Down-Arrow	Move to bottom of Form

Moving from one field to another can also be accomplished by selecting the left mouse button on a particular field. The cursor will be positioned in the first space of that field.

Remember, when adding records, no changes are saved until you Save the record. That means you are free to edit the entry in any manner you'd like.

The status line "Adding New Records" will appear at the bottom of the screen. Enter the following record. When all the information for that record has been entered properly, save the record using a Right-Amiga X or select *Form Record Store* from the menu.

FIRSTNAME: James
MI: F.
LASTNAME: Sadler
COMPANY: Acme Pictures
ADDRESS1: P.O. Box 58
ADDRESS2: 15468 Ocean Dr.
CITY: Fort Lauderdale
STATE: FL
ZIP: 33308
WORKPHONE: (305)555-3456
EXT: 218
HOMEPHONE: (305)555-4567
AGE: 26
DOB: 02/11/62
ANN:
CHILDREN: N
EARNINGS: 84000.00
COMMENTS: Best distributor in Southern area.

Store the above record (Right-Amiga X) and enter this next one:

FIRSTNAME: Mary
MI: C.
LASTNAME: Johnson
COMPANY: Municipal Power and Light
ADDRESS1: 39932 Grand View Ln.
ADDRESS2:
CITY: Ft. Lauderdale
STATE: FL
ZIP: 33331
WORKPHONE: (305)555-5678
EXT:
HOMEPHONE: (305)555-6789
AGE: 25
DOB: 03/04/61
ANN:
CHILDREN: N
EARNINGS: 34500.00
COMMENTS: Leaves for vacation on 10/15/86 for two weeks.

Store this last sample record. Continue entering your own sample

records to provide additional examples when we start exploring the database manager's more advanced features. Enter at least another 6 records. Storing a record with no information in any of the fields will cause a blank record to be saved in the database. Blank records take up just as much space as records filled with information.

INDEXING DATA

Indexing a field is necessary should you want the data for your reports sorted in either alphabetical or numeric order. Say you wanted a mailing list printed in zip code order, then you would Create an index for the ZIP field.

The database manager permits only one index open at a time, per database. Examples of including an indexed fieldname for a sorted report will be discussed in the Reports section. Right now we're only concerned with making you familiar with the database manager's Index procedures.

Move the mouse pointer to the *Index* menu at the title bar. *New*, *Open* and *Close* are displayed when the menu is pulled down. Since no index is open, *Close* is ghosted and is not a valid option. The database manager may only allow one index to be open at a time, but you can create indexes for each field of your database, should you wish. Select *Index New*. A requester will appear with the message "Field name to Index". Enter the fieldname "ZIP" and press Return or select the "OK" gadget with the left mouse button.

Depending on the number of records in your database, you may see a status requester counting the number of records that it is indexing. If you have fewer than 20 records, most of the time the index is created too quickly to display on screen.

Now you have created an index for the ZIP field. The index created is good only for the records that exist in the database now. Adding more records to the database will require you to create another index for the ZIP field, or else open that index before adding new records. This will be explained shortly.

You may now create indexes for several other fieldnames. For this example we will not require you to do so, but please feel free to create as many as you'd like, it will serve to make you more comfortable with the program.

When you have finished creating your indexes, select *Index Open* with your mouse pointer. A file Requester will appear with a listing of all indexes created.

Select the ZIP.ndx with the left mouse button and select the OPEN gadget. You have now opened an index for the ZIP field. With an open index, any records added will automatically update that index file. In other words, with an open ZIP index, there will be no need to create a new index for the ZIP field before running a report.

As we mentioned earlier, when you create an index, only the current records in the database are indexed. If you did not open an index and added additional records, you would need to create a new index for the ZIP field, or risk not having some of your records printed out in a report looking in that index.

Creating an index takes little time if the database isn't too large, while allowing you to index as many fields as necessary. Opening an index will insure that only that particular index is updated. If more than one type of report is run, each requiring a different field to be indexed, then nothing is gained.

However, in some instances where you normally sort on just one field (ZIP for example), some time could be saved by opening an index when adding new records to a database. If the index is opened, and that is the ONLY field that must be indexed for your reports, then the time it takes to create a new index for the ZIP field could be better spent running the report.

While an index is open you cannot create other indexes. The only option left is to *Close* the index that is open. You will notice that *Index New* and *Index Open* are now ghosted. This prevents you from trying to open more than one index at a time.

If you create a new index for a field when one already exists, but is not currently opened, the new one will over-write the old. In effect, this updates the index. Trying to create an index that is already open will result in an error message: **Can't create Index file !!**.

Now that you have entered and indexed data, you will want to be able to retrieve and update it. The database manager allows the creation of custom displays (called Forms) for data entry and retrieval. This will be the topic of the next chapter.

We are going to close the database and exit the database manager by selecting *Project Quit* or by selecting *Project Close* and then *Project Quit*.

Project Close followed by *Project Quit* writes any records still in memory to disk and updates the index, if one is open, then quits the program. *Project Close* writes any records still in memory to disk and updates the index, if one is open, and allows you to select *Project Quit* or *Project Open* (if you wanted to work with another database).

Choose one of the above options to quit the program and return to the main screen.

REMINDER: Never re-boot the machine or remove a disk from a disk drive while the red drive light is on. This could cause irretrievable data loss. As with any program, it is always good practice to backup your important data and save work in progress frequently.

Should you experience a power out or be forced to re-boot without having closed the database or exiting the program properly, all you will lose is whatever data is remains in memory. This is not fatal and can be easily remedied by re-entering the data for the last few records missing.

NOTES

CHAPTER 11C

RETRIEVING DATA

Very often, you will need to be able to retrieve and change records that you have entered into your database. The database manager's custom screens (called Forms) for data entry and retrieval makes this a pleasure and not so much a chore.

If the database manager is not loaded, please boot up the program by pressing the left mouse button twice on the database manager icon. When the database manager is loaded, select *Project Open* from the menu. If you have saved your example database to the Supplement disk, please log into that disk when the File Requester appears. Select the "NAMES.db" from the listing with the left mouse button and then select the OPEN gadget. We have just opened the sample database.

THE FORM MENU

This chapter will deal mainly with the *Form* menu. This menu contains most of the common menu selections you will need for maintaining your database. Hold down the right mouse button and move the mouse pointer to the title bar. Select the *Form* menu.

The *Form Change* selection has a separate screen that displays when it is active, which will be covered in a little while.

If you are not in the *Update* mode, please select *Form Mode Update* with the right mouse button. The database manager defaults to the *Update* mode unless the database is empty. The default mode then is *Add*. The first record we entered should now be displayed. You can switch between the *Add* and *Update* modes with the Right-Amiga A and U keys, respectively. In the *Update* mode, there are several keyboard commands that can be used to look through your data. They are:

CHANGE RECORD COMMANDS:

Keyboard	Function
Right-Amiga E	Erase record from screen
Right-Amiga Z	Undo record
Right-Amiga X	Write record to memory (Store)
Right-Amiga D	Delete record from memory
Right-Amiga R	Recall record

SEARCH RECORD COMMANDS:

Left-Amiga F	Goto first record
Left-Amiga L	Goto last record
Left-Amiga N A	Goto next record
Left-Amiga P	Goto previous record

MOVE FIELD COMMANDS:

Up Arrow	Move up a field
Down Arrow	Move down a field
Return	Move down a field
Shift-Up Arrow	Top of form
Shift-Down Arrow	Bottom of form

The *Form* menu commands are keyboard equivalents. To access them, press the right mouse button, move to the title bar and pull down the *Form* menu. Moving the highlight bar to the *Record* or *Field* selection will cause a pop-out menu to appear. Simply select the appropriate secondary command at that point. While this is generally more time-consuming than entering the keyboard equivalent, we recognize the needs of our users and have provided mouse support.

The database manager also allows you to scan through the database with the mouse. At the bottom of the screen is a Record gadget; next to it is a status line that reports whether the current record is active or inactive. The number displayed in the center of the gadget is the actual record number. When you are in the *Update* mode, the two

The Form Record menu item is now Form Change!

scroll arrows will not be ghosted. The left scroll arrow displays the previous record number and the right scroll arrow displays the next record.

By entering a number in the record gadget itself and pressing the Return key, you can force the database manager to display a specific record, should you know the exact record number that you are looking for.

Let's try it: select the Record gadget by moving the mouse pointer down to the number "1" in the gadget and pressing the left mouse button. A cursor will appear on or near the number, depending on your aim. Use the backspace or delete key to remove the "1" and replace it with a "3". Press the Return key when you've finished.

Mary C. Johnson's record will display if you entered the examples given in the last chapter. Experiment with the scroll arrows by selecting both the left and right arrows. When you reach the first and last records, that record will continue to re-display. If the first or last record happens to be inactive (because of deletion), a requester with "No more active records !!" will appear.

Both active and inactive records can be printed with *Form Record Print*. Just the current record form on the screen will be sent to the printer. This would be used when printing individual invoices, etc.

Experiment with the keyboard commands to scroll through the sample records. You'll probably find that you'll use them more than you will the mouse for data retrieval.

If you did not enter any sample records beyond the 3 we gave you, please do so now. Create another 6 or so by selecting *Form Mode Add*, making sure you save each record with a Right-Amiga X when you're done entering data. When you've finished, select *Form Mode Update*.

The database manager allows the editing and deletion of active records during the *Update* mode. Any changes made to a record will be lost unless you store it. When editing a record or field, the change

record commands can be used to abort an edit and re-display the original entry. Let's try this. Select one of the sample records you entered, make a change to the `FIRSTNAME` field and then press a `Ctrl-Q`. Optionally, you can select *FormField Undo* with the right mouse button. The original field for that record will re-appear. To restore the entire record after making changes to several fields, select *Form Record Undo* or press a Right-Amiga `Z`.

Remember, when making changes to a record, they can only be recovered with the *Undo* commands until the record is stored again. After the record is stored, the new information is stored in memory. Trying to *Undo* a field or record at that point will be useless. Nothing will recover (undo) an original record or field that was accidentally stored after being edited and saved.

If you make a change to a record without saving it and then switch modes, a "New changes will be lost" requester will display. This is your last chance to store the record you have edited without losing anything.

When in the *Update* mode, you not only have the option of editing records, but deleting them, if necessary. To the right of the Record gadget, appears a status line that reports whether the current record is active or inactive. The only records ever displayed in the *Update* mode will be active records. Inactive records can be viewed and recovered with the *Recall* mode, which is the third option under the *Form Mode* menu.

When a record is deleted, it is made inactive. Inactive records are ignored by the system during reports, but can be Recalled and made active again. To practice this, we'll delete a couple of the sample records you just created.

Use the keyboard commands or select the Record gadget scroll arrows with the left mouse button to look through the records. **Do not delete the 3 we entered in the last chapter!** After picking a sample record, delete it by pressing a Right-Amiga `D` or selecting *Form Record Delete* from the menu. An "OK to delete record?" requester will

appear. Select "OK". The status line at the bottom of the screen will have changed to "Current Record is Inactive".

Do the same with one or two more of your sample records. Once a record is deleted, it can no longer be viewed from the *Update* mode. When you have finished deleting, select *Form Mode Recall*.

The *Recall* mode checks for the closest inactive record from the current record number to the end of the database. If none are found, it will look backwards. The same record search commands that are used with the *Update* mode can be used when in *Recall*. Should no inactive records exist, a "No more inactive records !!" requester will appear.

Go to the first inactive record in the database by pressing an Left-Amiga F from the keyboard. Only inactive records will be displayed in *Recall* mode, the same way that only active records can be viewed while in *Update* mode. Use the Record gadget scroll arrows or keyboard commands to scroll through the inactive records. When you have verified that the records you deleted previously are displayed from *Recall*, go back to the first inactive record in the database.

Recall one of the inactive records by pressing a Right-Amiga R or by selecting *Record Recall* from the *Form* menu. The status line will inform you that the "Current Record is Active". In this way, accidentally deleted records can be recovered with minimum effort. Leave at least one or two of your inactive records un-Recalled. They will be used as examples for Packing the database. The *Recall* command can only be performed when in the *Recall* mode.

Inactive records can take up a lot of disk space. If you delete a lot of records in your database, they have the effect of slowing down your system performance considerably. The database manager has a feature to allow you to recover lost disk space because of inactive records. This function is called *Pack* and is the fourth option under the *Form Mode* menu.

What *Pack* does is check the database for inactive records. Any inactive record found is deleted from the file permanently, making it unrecoverable. This is done by reclaiming the disk space occupied by

the record. Depending on the number of inactive records, quite a bit of disk space can be recovered.

Before Packing a database, it is always a good idea to make backups of your data. A power loss or unexpected problem could cause irretrievable damage to your database. Another good practice would be to search through all your inactive records while in *Recall* mode to verify that the inactive records will not be needed. Once a database is Packed, those inactive records are permanently removed and cannot be Recalled.

Assuming you have made a backup of this precious data, select *Form Mode Pack*. A requester with "OK to pack database?" will appear. Select "OK" and a status window will display in the middle of your screen. While *Pack* is running, the database manager will report the record number that it is checking as well as the number of inactive records that were removed from the database. As with the Indexing function, this window may disappear too quickly when only a few records exist in the database.

Packing starts from the first record of the database. Once a *Pack* is performed, all records are re-numbered starting with number 1. If you are using record numbers to locate specific records, please keep this in mind: *Pack* will re-number your records.

After Packing a database, it will be necessary to create brand new indexes. The old ones will no longer be compatible since they are trying to reference records that have changed position in the database.

CUSTOMIZING FORMS

The next *Form* menu selection to be explained is *Form Change*.

The database manager supports data entry and retrieval through custom forms. The screen we have been working with is the default form. With your own form, you can arrange the fields in any order you like. Additional text can also be entered to enhance the appearance of the form for your reports and to provide instructions to whomever is

doing your data entry.

Forms can be created for several applications. You may have one person entering data in certain fields and another retrieving data from other fields. With the database manager, you can create a Form that displays just those fields. Plus, you are allowed an unlimited number of forms for your reports.

A powerful math package has been included with the database manager. With these math functions, the database manager can do sophisticated calculations, effectively turning your database into a mini-spreadsheet. These are described in detail in Chapter 24.

Accumulators are supported to allow calculations and running totals between records during reports and regular database searches. All this, plus the ability to create as many forms as disk space will allow, makes the database manager a very flexible and effective tool for your database needs.

Now you have an idea of the capabilities of *Form*, let's create one.

Select *FormChange*. The following screen will be displayed:

The screenshot shows a window titled "Names.env" containing a form with the following fields and their corresponding data (represented by black bars):

Field	Data
FIRSTNAME:	[Redacted]
MI:	[Redacted]
LASTNAME:	[Redacted]
COMPANY:	[Redacted]
ADDRESS1:	[Redacted]
ADDRESS2:	[Redacted]
CITY:	[Redacted]
STATE:	[Redacted]
ZIP:	[Redacted]
WORKPHONE:	[Redacted]
EXTENSION:	[Redacted]
HOMEPHONE:	[Redacted]
AGE:	[Redacted]
DOB:	[Redacted]
ANN:	[Redacted]
CHILDREN:	[Redacted]
EARNINGS:	[Redacted]
COMMENTS:	[Redacted]

At the bottom of the window, a status bar displays the word "MOVING".

Any record displayed will be cleared and all fields will be highlighted.

Now, check the menus.

Mode Move will be checkmarked. This is the default *Mode* when selecting *Form Change*. *Form Load* takes you to a requester that allows you to use different forms. *List* will abort whatever changes you have made and will re-display the default form. You will use this to create a brand new form. *Resume* will abort *Change* and return you to the main menu of the database manager, using the current form.

The greatest attraction is that you can re-arrange the individual fields in any order you like. The only limitations are that forms can only be 78 columns wide and 255 lines long.

To the right of the screen appears a scroll bar with scroll arrows at the top and bottom of the gadget. The bottom of the screen displays a status box with the word **MOVING** in it.

Let's move the MI field to the right of FIRSTNAME. Select the MI field by positioning the mouse pointer on the field and pressing the left mouse button. While holding down the mouse button, move the field around. It will flicker slightly as you move it around. Trying to push a field too far to the right or left will cause the field to "snap back" until it is flush with the margin. If you bring the field to the bottom of the screen, it will start to scroll. You can go as far down as 255 lines before it will stop scrolling, which means you can go no farther. The scroll bar to the right of the screen will not adjust until the field has been placed by releasing the left mouse button.

Try this. Move the MI field to where the status box is. The screen will start to scroll up. Continue to hold the mouse button down. When you've reached the 255th line, the MI field will appear in the status box. This means you can go no farther. Move the field up where it is on top of the status box. Release the mouse button. You will see the scroll bar adjust itself. To move back to the top of the form, bring the mouse pointer to the scroll bar. Press the left mouse button and hold it down. The scroll bar will turn black. Move it to the top of the scroll gadget and release the mouse button. The top of the form will be displayed.

The scroll gadget arrows can also be used to move one line at a time. Moving a page at a time is done by pressing the left mouse button on the scroll bar. Pressing the mouse button either above or below the scroll bar will cause the screen to page in that direction.

If you move the fields around too much, to the point of confusion, you can start from scratch by selecting *Form List* from the menu, with the right mouse button.

Bring the field to the top of the screen. This will start the screen scrolling upwards. The scroll bar will follow the field's approximate position in the form. When you've reached the top of the form, position the field back where it was, under FIRSTNAME.

Notice that the scroll bar is now solid. The database manager considers the last field to be the last line of the form. When we put the MI field back where it was, the database manager reclaimed the

empty lines after COMMENTS.

While you are in the *Move* mode, overlapping fields will force all fields down one line when you release the mouse button. Two fields cannot exist in the same place. Depending on the amount of overlap, the field to be moved will either force all others down one line, or it position itself below the field it overlapped, while pushing all the other fields down one line.

To gain an appreciation of this, it will be necessary to experiment with moving the fields around and forcing overlaps. Extra blank lines between fields can be removed easily when in the *Mode Delete* mode. This will be explained later.

Now, move the MI field so that it is a couple of spaces to the right of the FIRSTNAME field. When that is done, do the same with the LASTNAME field, placing it to the right of the MI field. The FIRSTNAME, MI and LASTNAME fields should now be on one line.

You now have two blank lines that are not needed. Hold down the right mouse button and select *Mode Delete* from the menu.

To delete unwanted fields on a form, select the field, like you would when moving it, and drag it down to the status box. It is now labeled DELETING. Release the mouse button to delete it. We'll practice that later. To remove blank lines, simply press the left mouse button down on the blank line you wish deleted. All other lines will move up one.

There are two blank lines between the FIRSTNAME field and the COMPANY field. Press twice, once on each blank line, to remove them. Do not worry about accidentally deleting fieldnames, the only way those can be deleted is to 'dump' them in the DELETING status box.

Insert a blank line between COMPANY and ADDRESS. Select *Mode Move*, since we're done deleting. Now, overlap the ADDRESS1 field with the ADDRESS2. Be careful not to overlap

the ADDRESS1 over ADDRESS2 more than halfway, this would cause ADDRESS1 to appear below ADDRESS2. Just push everything down one line.

When finished, select *Mode Add Text*, with the right mouse button, from the menu. A requester prompting you to "Enter new text" will appear. Enter a "," and press Return. A small cursor with the comma is now attached to your mouse pointer. Move this comma until it is next to the CITY field and press down on the left mouse button to release it. Any report printout will now contain a comma between the CITY and STATE.

Now move the rest of the fields. Using the *Move* and *Delete Modes*, please adjust your Form so that it appears like this:

The screenshot shows a window titled "Names.env" containing a form with the following fields:

FIRSTNAME:	MI:	LASTNAME:
COMPANY:	AGE:	EARNINGS:
ADDRESS1:		
ADDRESS2:		
CITY:	STATE:	ZIP:
MORPHONE:	EXTENSION:	HOMEPHONE:
DOB:	CHILDREN:	ANN:
COMMENTS:		

At the bottom of the window, a status bar displays the word "MOVING".

At any time your screen becomes so jumbled that it is useless to continue (don't worry, you'll get the hang of it), select *Form List* from the menu to start from scratch.

When you've finished moving the fields, select *Mode Change* with the right mouse button. The status box will display "CHANGING". This action is used to create alternative fieldname labels. A label cannot only be used to better express what the field is for, but also enhances the total appearance of the form. Try it to see for yourself.

Move the mouse pointer to the FIRSTNAME field and press the left mouse button. A requester like this will appear:

The screenshot shows a requester window titled "Nanes.env". The main area contains a list of fields: FIRSTNAME, COMPANY, ADDRESS1, ADDRESS2, CITY, WORKPHONE, DOB, and COMMENTS. A dialog box titled "Changing a Field" is open, showing "Field Name: FIRSTNAME", "Label: FIRSTNAME:", and "Width: 15". The status bar at the bottom of the requester window displays "CHANGING".

The fieldname as listed in the database will appear on the second line of the requester. Underneath it will appear the name "Label:" with an input prompt next to it containing the fieldname we defined when we created the database. Enter "First Name: ", in the prompt, making sure you enter a space after the colon. Otherwise, when you go to enter the data, the information will appear flush against the label. Beneath the label information is field width information. The value appearing is the field width default. By increasing the width, you gain nothing. The maximum amount of data for each field has been defined

and can only be changed with the *Project Change* function. If you had a large field and wanted to decrease the width to make a report more presentable, you would do that.

A good example is the COMMENTS field. You could change the width to 20 since it is unlikely you would need the full 64 columns. This would chop off any data displayed on the screen after the 20th column, but still allow a full 64 character entry; after the 20th character, the data would scroll to the left. For the sample database, we will not be changing any of the field widths.

If you are satisfied with the label, select the "OK" gadget with the mouse. Selecting "Cancel" will abort any changes you made to the label. The form will re-display with one change. The fieldname for "First Name: " has increased by one character. Do not worry about it. After the rest of the labels are created, you can adjust the fields with the *Mode Move* function.

Here's a hint for creating labels larger than 10 characters:

The ANN field is an abbreviation for Wedding Anniversary. Since we want the whole name displayed and there isn't enough room for that large of a label, we'll go another route.

Select the ANN field. Enter just a ": " for the label name; don't forget the space after the colon. Now, select *Add Text* from the *Mode* menu. Enter "Wedding Anniversary" in the input prompt and select the "OK" gadget. With the text attached to the mouse pointer, position the text in front of the colon label. You will need to *Move* some of the fields for everything to line up properly.

Be careful when doing this! Since the text information and the label are not attached, it is very easy to accidentally place the wrong label against the wrong field. If you are in doubt, select the questionable label with the left mouse button when in the *Mode Change* mode. The requester will appear with both the label name and the fieldname, to which it references.

Create the rest of the labels by selecting each of the fieldnames and then moving them. They should appear as shown below:

The screenshot shows a window titled "Names.env" containing a form with the following fields and labels:

- First Name: [redacted] MI: [redacted] Last Name: [redacted]
- Company: [redacted] Age: [redacted] Earnings: [redacted]
- Address: [redacted]
- Address: [redacted]
- City: [redacted] State: [redacted] Zip: [redacted]
- Work Phone: [redacted] Extension: [redacted] Home Phone: [redacted]
- Birth Date: [redacted] Children: [redacted] Wedding Anniversary: [redacted]
- Comments: [redacted]

At the bottom of the window, a status bar displays the word "MOVING".

Notice that ADDRESS1 and ADDRESS2 were both labeled "Address". The database manager does not care what label you create for a fieldname. They could all have the same label and the database manager will accurately keep track of the data for each field.

For that matter, no label name need be attached to the fieldname at all, in instances where you just wish the data to be displayed without corresponding text.

The last *Mode* function is *Add*. When selecting it, a pop-out menu appears with three options. The first option is "Entry Area". If you've accidentally deleted a field from the form, and do not wish to start the form from scratch, select this option.

Trying to *Add an Entry Area* when the field already exists will cause an error. Select *Mode Delete* and move the MI field down to the status box. To delete it, release the left mouse button while the field is inside the box.

Now recover the MI field by selecting *Add Entry Area*. A requester will appear:

The screenshot shows a window titled "Names.env" with a form containing the following fields: First Name, Last Name, Company, Age, Earnings, Address, City, Work Phone, Birth Date, and Comments. A modal dialog box titled "Adding a Field" is centered over the form. This dialog has three input fields: "Name:", "Label:", and "Width:". Below these fields are two buttons: "OK" and "CANCEL". The status bar at the bottom of the "Names.env" window displays the word "ADDING".

Select the input prompt next to the "Name:", enter "MI" and press Return. Until now, the Label field has been ghosted. If you enter an illegal fieldname, the requester, "No such field exists !!" will display. Entering a fieldname that exists but has not been deleted, brings up a "Field in use !!" requester.

If the fieldname is correct, the "Label:" input prompt will un-ghost. If you desire to create an alternate label for the fieldname, enter it here. The "Width:" field should be left alone. Select the "OK" gadget. Attached to the mouse pointer is the MI field. Move it next to

FIRSTNAME and press the left mouse button to release it.

Move the mouse pointer to the title bar and select the *Mode* menu. *Delete* should be checkmarked. *Mode Add* is a one-time selection. You will automatically be returned to the previous *Mode* after completing an *Add* function.

The next *Add* menu selection is *Formula*. This is one of the database manager's most powerful features. Imagine a database program with the mathematical capabilities of the best electronic spreadsheet.

Select *Add Formula* from the *Mode* menu with the right mouse button. The following requester will display:

The screenshot shows a requester dialog box titled "Adding a Formula" overlaid on a database form titled "Names.env". The background form contains fields for First Name, MI, Last Name, Company, Age, Earnings, Address, City, Work Phone, Birth Date, and Comments. The "Adding a Formula" dialog box has the following elements:

- Label: [text input field]
- Formula: [text input field]
- Width: [spin box]
- Decimals: [spin box]
- ACCUMULATE (checkbox)
- OK (button)
- CANCEL (button)

The status bar at the bottom of the requester displays the word "ADDING".

Only the "Cancel" gadget and Formula input prompt are un-ghosted. Enter the following formula: "EARNINGS/52" and press the Return key. Formulas can be up to 80 characters in length. The rest of the requester will un-ghost itself at this point. Had you entered an illegal formula, the requester, "Invalid Formula !!" would have appeared.

In the Label prompt, enter "Wkly Earn:\$ " and press the Return key. Change the Width to "9" and the Decimal to "2". The ACCUMULATOR gadget should NOT be surrounded by a box. When that is done, select the "OK" gadget. The label will be attached to the mouse pointer, position it so that it is right below the "Earnings" field. If you accidentally insert a line, delete it.

These Formulas are called derived fields. They do not take up record space, nor will they be saved as part of the record. However, they are perfect for doing calculations and displaying totals. Their only drawback is their inability to reference another derived field. In other words, Formulas may only work with legitimate database fieldnames. Do not enter label names as part of a Formula, otherwise an error will occur.

Select *Add Formula* again. Enter "Totl. Earn:\$ " and press the Return key. Enter the same formula as we did above, only this time select the ACCUMULATOR by pressing the left mouse button in the gadget. It should now be surrounded by a box. When that is done, select the "OK" gadget and position the field under "Wkly Earn:\$".

This type of derived field is called an Accumulator. It stores information from one record to the next (backward or forward), allowing a running total to appear while searching or printing reports. This is one of the more powerful uses for the derived field, but you must remember that it is not "intelligent"; it doesn't know that you have already included a specific record. If a specific record is viewed more than once, it is added to the total in the Accumulator each time it appears.

Changing a Formula is as simple as selecting *Mode Change* from the main menu and selecting the Formula field with the left mouse button.

Lets take a quick look at what the derived field does. Select *Form Quit* from the main menu. If we are not in *Update* mode, select *Form Mode Update*. The screen will appear with one of the sample database records. Notice the value in the derived field. The person's weekly salary is displayed under his EARNINGS. As you scroll

through the database, you will see the field automatically adjust its value accordingly.

The Accumulated field will increase as each record is retrieved. To clear an accumulated field, press an Left-Amiga 0.

Having verified that the derived fields work and that their Formulas are performing properly, select *Form Change* so that we may finish the changes to the form and store it.

MATHEMATICAL OPERATORS

The database manager's derived fields have the ability to do calculations on both numeric datatype fields and numbers, using the following mathematical operators:

^	Exponential calculation
*	Multiplication
/	Division
+	Addition
-	Subtraction

They are listed in order of precedence. To multiply the value of fieldname NUM1 by 1.05 (which increases the value by 5 percent), type in the formula:

NUM1*1.05

Parentheses can be used to force some calculations before others:

NUM3*(NUM1+1.05)-3.45

would force the addition of the fieldname NUM1 and 1.05, then multiply that result to the value of fieldname NUM3. The result from that would then be subtracted by 3.45. To add another level of complexity, nest parentheses:

(NUM3*(NUM1+1.05)/23)-3.45

When using parentheses, make sure you balance the formula by having the same number of open and close parentheses. Otherwise, an error message will appear.

LOGICAL OPERATORS

The database manager permits "logical" or "conditional" statements that test for relationships between values and return either a "TRUE" or "FALSE" result.

This result can be useful when combined with certain of the @functions.

Some examples:

AGE=22 The value in the fieldname is 22.

AGE>10 The value in the fieldname is greater than 10.

If a statement is TRUE, its value is -1. FALSE statements have a 0 value.

The database manager recognizes the following operators for Text, Numeric, Date and Yes/No datatypes:

=	equal
<	less than
<=	less than or equal
<>	not equal
>	greater than
>=	greater than or equal

Compound Conditionals (lower precedence):

#NOT#	logical not
#AND#	logical and
#OR#	logical or

SPECIAL FORMULA FUNCTIONS (@FUNCTIONS)

Chapter 24 is a list of the database manager's many mathematical functions, with some brief examples.

Any function that looks for a list, "x" or "n", etc., can be substituted with a legal fieldname. If you have any doubts, experiment. These powerful functions can be brought to use in any number of ways and fall in two areas, logical operators and @functions (pronounced "at functions").

Many sophisticated mathematical functions can be performed automatically within a database. These functions expect numeric datatype fields or numbers as arguments, with three exceptions. They are: @CHOOSE, @COUNT and @IF. These last three will accept character string input.

The last *Mode Add* function is *Text*. We covered this briefly when we placed a comma between the CITY and STATE fieldnames.

Mode Add Text allows you to place information on a form that would improve its appearance, or more often, to provide useful information for those using the program.

Text labels can be up to 77 characters in length, and can be placed anywhere on the form. Select *Add Text* now and enter the following: "Sample Database - Main Form" and press Return. The field will be attached to the mouse pointer. Place it up at the top of the Form and move everything down one line so your screen appears like this:

The screenshot shows a window titled "Names.env" containing a form titled "Sample Database - Main Form". The form has the following fields:

- First Name: [redacted] MI: [redacted] Last Name: [redacted]
- Company: [redacted] Age: [redacted] Earnings: \$ [redacted]
- Address: [redacted] Mily Eann: \$ [redacted]
- Address: [redacted] Totl. Pay: \$ [redacted]
- City: [redacted] State: [redacted] Zip: [redacted]
- Work Phone: [redacted] Extension: [redacted] Home Phone: [redacted]
- Birth Date: [redacted] Children: [redacted] Wedding Anniversary: [redacted]
- Comments: [redacted]

At the bottom of the window, the word "MOVING" is displayed.

Now it's time to try the last *Form* command, *Form Save*. Select that option now and watch the File Requester appear.

In the "Selection:" input prompt, enter the name "MAIN". When that is done, select the Save gadget with the left mouse button. Enter an optional comment if you'd like.

When the database manager opens a database, it automatically loads "MAIN.frm", if one exists. Since we went through all the time and trouble to create this form, we'll want to boot up with it each time.

If you later wish to change the name of the form, load it with *Form Load*, and then select *Form Save*, change then name in the *Selection* input area, and click *Save*. Then Delete the original form. From there, it's just a small matter of creating one to your liking.

Changing an existing one is even easier. Once you Get it, make the changes and go back to the File Requester. The Form name will be in the "Selection:" input prompt. Select the Save gadget and a "File

exists, replace?" requester will appear. In effect, this replaces the old form with the new one.

Now that we have the custom form, let's learn how to search for specific records. The next chapter deals with database searches.

CHAPTER 11D

SEARCHING FOR DATA

Searching for specific records in a database is very important when it comes time to run reports or locate records. While you can scroll rather rapidly through the database, it would become quite time consuming to look through 30,000 records just to find those records with the LASTNAME of "Johnson".

Fortunately, the database manager has two special search functions. One scans through the database sequentially and the other searches through an open index.

Hold down the right mouse button and pull down the *Search* menu. *Define* and *Use* are the only un-ghosted options. The *Use* pop-out menu is ghosted since no Search Filters have been defined.

A Search Filter is a character string used to compare individual records in the database against specific criteria. Only those records that fall into the "pattern" of the Search Filter will be displayed when using *Search Next* and *Search Prev* commands.

The database manager allows up to 4 search filters to be defined. Only one filter at a time may be used. These searches are sequential searches through the database. What this means is that any searching will start with the current record number and continue forwards or backwards one record at a time.

The search filters work with *Find Next* and *Find Prev*. Now you'll define a search option. Select *Define Filter 1* with the right mouse button. A requester will appear with "Enter search string". Search criteria can be as long as 255 characters. Enter the following:

```
FIRSTNAME>="M"#AND#FIRSTNAME<"N"
```

Upper or lower case does not matter for search strings. Any Text or

Yes/No datatype search criteria must be surrounded in quotes. ONLY use the database fieldnames. DO NOT use the alternate field labels. Select the "OK" gadget after the string is entered. You have now defined your first search criteria.

With the right mouse button held down, select *Form Mode Update*. The database manager cannot search while in the *Add* mode. The versatile thing about searches is that they can be performed with both active and inactive records. To search inactive records, select *Form Mode Recall*.

Once in the *Update* mode, select *Search Use Filter 1* with the right mouse button. Remember, up to 4 Filters can be defined, but only one can be used at a time for searching. You'll notice that the other 3 *Filters* are still ghosted since they haven't been defined. After defining a new search *Filter*, it is automatically selected as the current Filter in Use.

If you are not at the beginning of the database, press an Left-Amiga F to find the first record. Start searching by selecting *Search Next* or pressing a Right-Amiga F from the keyboard. Mary C. Johnson's record should now appear. The search criteria specified all records that had a FIRSTNAME greater than or equal to "M", which would include Mary or any other FIRSTNAME that began with an "M". We also placed an #AND# condition that said don't display any FIRSTNAME's that were less than or equal to names beginning with an "N".

Because of the search criteria, only names beginning with "M" will be displayed. Select *Find Next* again. If you entered a sample record that had a FIRSTNAME that began with an "M", it will be displayed. If no match is found, a requester with a "Can't find match !!" message will appear. Otherwise, the next match will be shown on the screen. Searching backwards would be accomplished with the *Find Prev* or Right-Amiga P key.

The database manager recognizes the following operators for use with Text, Numeric, Date and Yes/No fields:

=	equal
<	less than
<=	less than or equal
<>	not equal
>	greater than
>=	greater than or equal

Do not reverse the operators, =< instead of <=, or else the search will not work correctly.

Compound Conditionals (lower precedence):

#NOT#	logical not
#AND#	logical and
#OR#	logical or

Dates must be entered in the format: YYYYMMDD. For example:

DATE>=19580203

searches for any date that was greater than or equal to February 2, 1958.

DATE>=19580000

searches for any date that was greater than or equal to the year 1958.

If you wanted to search for a particular year, always pad the search string with zeros. The date search criteria **MUST** be 8 characters long.

When searching for data, the normal search record commands are still available. However, you will only obtain exact record matches when doing a *Find Next* or *Find Prev* with the proper *Filter* selected.

The following are some examples of search filters and the response

you should get from the database:

AGE=28#OR#AGE=54

would search for any record that had a value of 28 or 54 in the AGE field. All others would be ignored.

EARNINGS>=34000.00

searches for any record that had a value equal to or greater than 34000.00 in the EARNINGS field.

STATE="FL"#AND#ZIP=33405

searches for people living in the state of Florida that also had a ZIP code of 33405.

LASTNAME="J"#AND##NOT#LASTNAME="Jones"

searches for any person whose LASTNAME begins with a "J" but will ignore any records whose LASTNAME is Jones.

The second type of searching that can be done is a *Browse*. You'll notice that the option is still ghosted. *Browse* works with whatever index is open at that time. Because it searches through the index, *Browse* will be noticeably faster on larger databases. It does not have the same flexibility as the *Search Filters*.

Select *Index Open* and OPEN the ZIP.ndx, unless you have records that were entered when the index was not open. In this situation, do not select the *Index Open*; select instead *Index Create*. When it asks for the fieldname to index, enter ZIP and select the "OK" gadget. For this exercise, we want to make sure all the records in the database have been indexed.

Once that is done, go back to *Index Open* and OPEN the ZIP.ndx. Notice that *Search Browse* is no longer ghosted. Highlight it with the mouse pointer and release the mouse button, it can also be accessed from the keyboard with the Right-Amiga B key. A requester will appear with an input prompt with the message, "Enter ZIP to search for". Enter "33308" (without quotes) and select the "OK" gadget.

James F. Sadler's record will appear.

There is one important thing to remember when Browsing specific dates: to make the indexes dBASE III compatible, only dates from January 1, 1900 to December 31, 1999 will be accepted. The format for entering a date is YYYYMMDD. If you need to search for a date that falls out of this range, *Search Filters* will be required.

The *Browse* function differs quite a bit from the regular *Search Filters*. *Browse* will not support any of the logical operators, nor will it accept special search conditions. Character case **DOES** matter and there is no way to search next or previous records. If a partial Browse is entered, it will attempt to locate the closest match for that indexed value; searches of that kind are better done with the use of *Filters*. One hint when using *Browse* is to enter just the first letter of the fieldname for the record that you are looking for. If that fails, enter the second, and so forth, until you find the record, or are reasonably sure that it does not exist. Again, the best procedure to use in these cases is to define a search *Filter*.

Take some time now to experiment with both the *Search Filters* and *Search Browse*. Make yourself as familiar as possible with the many search criteria available.

Defining the proper searches will be invaluable when you start running specialized reports. The next chapter deals with the *Report* menu. Become familiar with the *Search Filters* before continuing.

A special @ function allows you to search for data within a field. See Chapter 24 for details about the @INSTR function.

NOTES

CHAPTER 11E

GENERATING DATABASE REPORTS

The database manager supports reports printed to printer, disk file and the screen.

The MailMerge datafile format makes the database manager completely compatible with the wordprocessor MailMerge functions.

The same form you create for data entry can be used when printing reports.

Reports can be created that print records fitting *Search Filter* criteria in sorted ascending or descending order.

This menu deserves some explanation before we start printing reports. The *Print* menu consolidates all you've learned about retrieving and searching for specific records. After this short discussion about the menu items, you should have no trouble printing your reports. However, examples will be given in order for you to get the most out of the database manager's Report functions.

The *Print Preview* selection prints your report to the screen. This allows you to check the settings to see if the report will be correct. Next, the *Go* item. It has two options: *Printer* and *File*. When *File* is selected, the database manager sends the report to a disk file that can later be edited with a wordprocessor. *Print Go Printer* sends the file to the printer selected in AmigaDOS Preferences.

The *Form* option under the *Format* menu item tells the database manager to print the data as it appears in the current *Form*. *Design* prints the structure of your form, including formulas, fieldnames and corresponding label names.

The *Options* menu item displays a pop-out menu with these options:

Page-Length is used to determine the maximum amount of lines allowed per page. The default is 66. If you change your preferences to 8 lines per inch, you should change your Page-Length to 88.

Top-Margin is the number of blank lines that will appear at the top of each sheet of paper before printing. The default is 6 lines per page.

Bottom-Margin is the number of blank lines that will appear at the bottom of each sheet of paper. The default is 6 lines per page.

Setup allows you to send a string directly to your printer, bypassing printer preferences. For instance, if you have an Epson or compatible printer, a setup string of "^O" or "%15" would place the printer in condensed mode. Percent signs are used in front of characters when you are using their decimal value instead of the ASCII. A decimal value of 15 translates to a ^O when converted to ASCII.

Blanks tells the database manager how many blank lines between each Form. The number of blank lines automatically defaults to "2". Entering "0" would cause the Form to print one right after another. A "-1" instructs the database manager to send a form feed between each Form. That is, one record for each sheet of paper. Any other number entered would be the actual number of blank lines between Form.

The *Sort* option is ghosted unless you have an open Index. The default *Sort* selection is *None*. *Ascending* would print records from the lowest value in the Index to the highest. *Descending* does the opposite, highest to lowest.

The *Filter* option is ghosted until a Search Filter is defined. The default selection is *Off*. If it is *On*, it will print records that match the search criteria for the current Filter in Use.

Comments: Terrific technical author

Comments: Best distributor in Southern area.

First Name: Mary **MI:** C **Last Name:** Johnson

Address:
City: Ft. Lauderdale , State: FL Zip: 33331

Work Phone: (305)555-5678 Ext: 0
Home Phone: (305)555-6789
Birth Date: 03/04/61 **Children:**
Wedding Anniversary:

Comments: Leaves for vacation on 10/15/86 for two weeks.

A requester will appear in the middle of the screen with the record number that it is printing. This will not be the actual record number in the database, just the number of records it is printing. The mouse pointer will be snoozing. To abort a report, press the Esc key.

Now print them in ZIP code order. Go to *Index Open* and OPEN the ZIP.ndx. If you are not absolutely sure that all the records in the sample database have been indexed, do not open the index. Instead, select *Index New* and enter "ZIP" as fieldname to index. After the database manager has finished creating the index, select *Index Op* and OPEN the ZIP.ndx.

If all the records in your database are not indexed, those that aren't will be ignored when you select a *Print Sort* option. This would happen if you had indexed your database on the ZIP field and then had added some new records without opening that index. Those newly entered records would be ignored by the database manager, since it is looking in the currently open index for records.

As was mentioned before, unless you plan to use only ONE index for sorted reports, and that index is ALWAYS open when adding new records, it would be a good practice to re-index on any field that will

be used for sorted reports. Otherwise, there is the chance that some records will not be included in your reports.

With the ZIP index open, *Print Sort* is no longer ghosted. The title bar will display the word "INDEX" along with the open index name. Select *Sort Ascending* with your mouse pointer. This will print all records sorted in ZIP code order, from the smallest value to the highest. This will be very important when you print mailing lists. Make sure that *Ascending* is checkmarked and select *Print Go Printer*.

One more report to run before we start showing you some more hints. Select *Search Define Filter 1*. Enter the following string:

LASTNAME>="J"#AND#LASTNAME<="K"

Select *Search Use Filter 1* so the database manager knows which search criteria to use when looking for records. Now select *Print Filter On*. It is un-ghosted since a search Filter has been defined. The word "FILTER" with the current Filter number in use will appear on the title bar.

Select *Print Go Printer*. The database manager will print any records that have lastnames beginning with a "J". In addition, these records will be printed in ZIP code order. If you didn't want the records printed in ZIP code order, you would have selected *Sort None*.

To print a separate set of records, define another Search Filter and use it. Then run the report again. See how flexible the database manager is?

Now, you'll print a report to the screen. Many times, while creating a Form for a particular Report, it will be desirable to print the report to the screen instead of wasting a lot of paper by sending the report to your printer.

Select *Print Preview*. The records will start displaying on the screen. To pause the screen output, press the space bar. To resume, press the backspace key. Holding down the right mouse key will also serve the

same purpose. To abort the report, press the Esc key.

The database manager requires that MailMerge reports go to a file or the Clipboard (see the following *Transfer* menu section), since they are all but useless for anything but form letters or data export for import into other databases. Many types of database programs will read in MailMerge format files, allowing you to easily use the database manager with another application if the other application does not accept dBASE III compatible datafiles.

Ideally, you would write a MailMerge format file for use with the wordprocessor. This allows the creation of form letters. If you wanted the same letter sent to many people, each "personalized", then this would be the perfect way to go. When entering a filename to output to, the database manager defaults to the current directory. This generally will be the main directory of the Workbench disk. You should precede the filename to which you will save this file with the volume name of a data disk. This may not be where the database files are located but should make it much easier to copy or gain access to the datafile when using it for MailMerge purposes. For example:

Datadisk:Merge.dat

There is one added benefit to using the wordprocessor with a MailMerge file: it will eliminate the trailing blank spaces in a field. These spaces are most apparent in mailing labels. For example, with the City field set for 20 characters, and the report form placing a comma and the State field on the same line, the database manager would print:

Miami , FL

and the wordprocessor would print:

Miami, FL

When creating a MailMerge file, remember that the database manager will write the fields to disk in order, from left to right, and top

to bottom, *as they appear on the form.*

We're going to show you a couple of quick hints for reports. One will be to create a MailMerge file and the other to print out a simple mailing list on one-across mailing labels.

Select *Form Change*. Then select *Form Load* and answer "OK" to create default. Make your form look like the following by deleting all non-essential fields:

The screenshot shows a window titled "Nanes.env". Inside the window, the following fields are visible, each followed by a redacted area (black box):

- FIRSTNAME:
- MI:
- LASTNAME:
- ADDRESS1:
- ADDRESS2:
- CITY:
- STATE:
- ZIP:

At the bottom of the window, there is a status bar that says "MOVING".

Note that *only field information* is ever written to a MailMerge file. Any additional text or formulas in the Form will be ignored. Only the information in the fields will be written to the file, nothing else.

This gives you a basic mailing list. At this point, select *Transfer Export File*. Enter "MAILMERGE.DAT" as the filename. If you have an index open and the proper *Sort* option selected, this datafile will be written automatically in ZIP code or any other order that you would need. This saves an immense amount of time if doing the type of

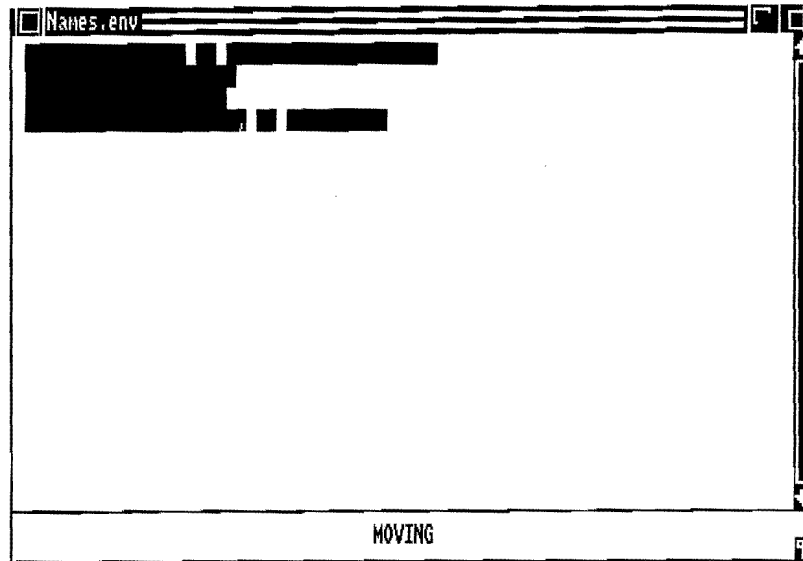
mailings where ZIP code order can save you money.

It would be a good idea to do a *Form Save* and SAVE a format called MAILMERGE, for future use.

The next example will be a mailing list that can be printed directly from the database manager. Take the MAILMERGE Form we just created and arrange it like this:

The screenshot shows a window titled "Names.env" with a form layout. The form contains the following fields: FIRSTNAME, ADDRESS1, ADDRESS2, CITY, STATE, and ZIP. Each field is represented by a black rectangular box. The fields are arranged in two rows: the first row contains FIRSTNAME, ADDRESS1, and ADDRESS2; the second row contains CITY, STATE, and ZIP. The window has a standard Mac OS-style title bar with a close button on the right. At the bottom of the window, the word "MOVING" is displayed, indicating the current mode of the form.

Don't forget the *Add Text* option to insert a comma between the CITY and STATE fields. Once that is done, go to *Add Change* mode and make blank labels for each of the fieldnames. As you create blank labels, the individual fields will need to be *Moved* over to the left and aligned. When done, your form should look like this:



This is a practical form to use with mailing lists since no unnecessary information will be printed on the labels. Select *Print Options* and change your *Top* and *Bottom Margins* to 1 and change the *Page-Length* to 6. This will print a 1 line space at the top and bottom of each label. For *Blanks*, select a "-1". If you need lists with more than four lines per label, it would probably be a good idea to set your printer preferences for 8 lines per inch and adjust your *Margins* and *Page-Length* accordingly.

TRANSFER MENU

The *Transfer* menu works in the MailMerge format. The MailMerge format creates a file that is compatible and can be used with the wordprocessor for the printing of form letters. Form letters are made from a letter shell (that does not change) and items of data (such as names and addresses) which vary from letter to letter and are automatically inserted in specific places in the shell.

Transfer Import and *Transfer Export* allow you to move data into the database (*Import*) and out of the database, to other applications (*Export*). There are two options for moving data: *File* and *Clipboard*. The *File* option allows you to permanently store the information to disk. The *Clipboard* is the AmigaDOS device which serves as a storage area when moving data between applications. It is a more convenient method than *File* when multi-tasking because it is much faster.

See the section, *Clipboard*, in Chapter 4 for details about the format.

The *Transfer Sort* and *Transfer Filter* options work as described above for the *Print* menu.

This covers the basics along with some advanced examples of report generation with the database manager.

CHAPTER 12A

TELECOMMUNICATIONS BEGINNERS TUTORIAL

In this chapter you will learn how to configure the telecommunications program and make your first call. The Micro-Systems Software's BBS-PC! Headquarters BBS number will be provided if you don't know any local BBS phone numbers¹. The tutorial in the next chapter includes downloading a file which includes a national BBS-PC! bulletin board listing.

Before you can make a call, make sure your modem is connected to your Amiga and the phone line connected to the modem.

If the telecommunications program is not already loaded, please do so now. From the main screen, select *Project Telecommunications*. The telecommunications program automatically loads in the terminal mode. From the terminal mode you can interact with a remote system or send commands directly to the modem.

STARTING THE PROGRAM

If you are running **THE WORKS! PLATINUM EDITION** from Workbench, all you need to do to start the telecommunications program is double-click the left mouse button while pointing to the *PLATINUM_WORKS!* icon. You could also double-click on a *.trm* icon. Should you decide to run the program from CLI, the procedure is equally simple. Type *PLATINUM_WORKS!* and press Return. Then, select the telecommunications program from the menu.

Either way you choose to start the program, the result will be the same. The telecommunications program will boot up in the terminal mode.

¹Don't worry about not knowing any local numbers. Once you obtain the number of one BBS, that board will probably have a list of other local numbers. Your list will geometrically increase...

FILE REQUESTERS

The program uses the following File Requesters: *Project Open/Save/Save As*, *Script Load/Save* and *Buffer Load/Save*.

Project Open/Save: Displays all filenames ending with the filename pattern .TRM. These files are known as Terminal files and store all program settings.

Script Load/Save: Displays all filenames ending with the pattern .SCP. Script files can be stored and retrieved through this File Requester.

Buffer Load/Save: Displays all filenames, regardless of the filename pattern. Files loaded from this requester are stored in the program's buffer.

To display one of the File Requesters, select *Project Open*, *Project Save*, *Project Save As*, *Script Load*, *Script Save*, *Buffer Load* or *Buffer Save*.

SERIAL CABLES

Your Amiga needs a special type of modem cable. The serial port of your Amiga supports 25 pins. The serial port is located on the back of your Amiga and can be identified by the phone above the connector or the words *SERIAL PORT* below the connector. The telecommunications program requires 11 pins to be present. Pins transmit data from the Amiga to your modem. They are listed below:

Pin	Description
1	Frame Ground
2	Transmit Data
3	Receive Data
4	Request to Send
5	Clear to Send

6	Data Set Ready
7	Signal Ground
8	Data Carrier Detect
12	High Speed Signal
20	Data Terminal Ready
22	Ring Indicator

While the program will work properly if more pins are used, there are pins which **MUST NOT** be present. Pins 14, 21 and 23 on the Amiga 1000 and pins 9 and 10 on the Amiga 500/2000 carry voltage which can harm your modem. If you have not purchased an Amiga-specific serial cable, contact your local dealer for information on how to remove those pins. If your local dealer cannot help, contact Micro-Systems Software, Inc. for details on purchasing a proper serial cable.

Owners of the Anchor Automation Omega-80 modem will notice their modem has a serial cable already built-in to the modem. This modem may use these pins to provide power to the modem, so there is no need to tamper with the serial cable.

If you are unsure about whether your modem falls into this category, contact your local dealer or check your modem manual.

MODEM TYPES

The telecommunications program will work with almost any type of modem. There are two types:

- Acoustic coupler modems. These must be manually dialed and the telephone handset placed onto the modem to establish the connection.
- Direct connect modems. These are designed to plug directly into the phone lines. Most direct connect modems accept information from the computer to carry out specific instructions, such as dialing the phone. These are known as command driven modems.

The most popular type of modem is a Hayes or Hayes compatible modem. Hayes modems are direct connect, command driven modems. The telecommunications program can dial any command driven modem, even those which do not support the Hayes command set. The program automatically loads with defaults to dial a Hayes or compatible modem.

MODEM SETTINGS

Select *Preferences Modem*. The following requester appears:

Telecommunications

☐ Clock: 15:35 Emulation: ITY Buffer: CLOSED COM: 2400:7E1

Setup String: ATDT00 V1 X1
Dial Prefix: ATDT
Dial Suffix: 1
Hangup string: ***ATH0

Connect Result: CONNECT
No Connect Result #1: NO CARRIER
No Connect Result #2: BUSY
No Connect Result #3: VOICE
No Connect Result #4:

Dial Window: 20
Redial Count: 0
Redial Pause: 2

OK

Shift F1 F2 F3 F4 F5 F6 F7 F8 F9 F10

The defaults listed above should work correctly with most Hayes and compatible modems. If your modem not Hayes compatible, refer to the examples and substitute the commands your modem uses.

To change an entry, move the mouse pointer to the input area and press the left mouse button. After entering the new information, press the Return key. To clear all input areas, select *NEW*.

Below, is a list of each item displayed in the *Preferences Modem* requester and its contents.

SETUP STRING A string sent to the modem that initializes it in preparation for use with the program. This is not a requirement for your modem to work with the program. However, there may be some situations where your modem's DIP switches are configured differently and using a setup string would be easier than changing the DIP switch settings.

The setup string can be a string of up to 46 ASCII characters. Within this string, you have the following control characters available to you:

Character	Function
	Vertical bar. Sends a carriage return to the modem.
\	Backslash. Sends a line feed to the modem.
^	Carat. Sends the next character's "control" value. For example, ^A would send Ctrl-A.
~	Tilde. Causes a one second delay before sending the next character in the string.
'	Reverse apostrophe. Causes a 100ms delay between each character following in the string. Slows it down to typing speed.

The backslash and vertical bar are on the same key for many keyboards, as are the tilde and the reverse apostrophe.

The following is a break-down of the Hayes modem setup string for reference if your modem is not Hayes compatible:

Setup string: ATE0 Q0 V1 X1|

Command	Function
AT	Attention code that must precede every new command sequence.
E0	Disables command character echoing.
Q0	Result codes are sent to DTE (screen). If no result codes are sent from the modem, the program will not be able to determine when to automatically redial a number or allow Script files to be executed in some instances.
V1	Result codes are sent in word format. For modems that do not return result codes in word format reliably, change this command to V0 to have result codes sent in numeric format. Make sure you also change the result codes within the program to match those your modem will be returning.
X1	This command configures the modem to use basic status messages and return the "CONNECT" codes.

Sends a carriage return to terminate the command string.

Some of the commands listed above are defaults used by most modems or functions that can be changed through the modem's DIP (Dual In-line Package) switches.

One additional command is very useful. It is S0=0 which disables the modem's auto answer capability. By adding this to the setup string, you will prevent the modem from answering the telephone if you forget to turn the modem off after a session and receive an incoming voice call. The string would be: AT S0=0 E0 Q0 V1 X1 I.

DIAL PREFIX The default string is ATDT. This command is sent to the modem before the phone number and directs the modem to dial the number using Touch Tone dialing. If your phone service does not support Touch Tone dialing, change your dialing prefix to ATDP for pulse dialing.

If you have a feature called "Call Waiting" for your phone lines, you may be able to use a dial prefix of ATDT*70 or ATDP1170, which disables the feature for many calling areas. **Some phone companies charge extra each time Call Waiting is disabled.** Contact your local phone system for information if you have any questions.

If you use an alternative long distance dialing service, your calling code can be added to the dial prefix.

DIAL SUFFIX The default is I. This command is used to terminate the dialing command. The I character is used to send a carriage return.

HANGUP STRING The default string is ~~~+++~~~ATH0|. This command is sent when you select *Project Hangup* and DTR is forced. DTR stands for Data Terminal Ready. Most modems have DIP switches to toggle the status of DTR. The telecommunications program prefers to have DTR "honored" or not "forced active." This permits the program to quickly hang up the phone for redialing or to terminate a call. If your modem always forces DTR, the program will use the hangup string to terminate the call.

The hangup string is broken-down as follows:

Command	Function
~~~	Sends a three second delay before performing the next command.
+++	This is a Hayes escape sequence which takes the modem out of the terminal mode and places it in the command mode.
~~~	Sends another three second delay before performing the next command.
ATH0	Sends the attention command to the modem and then the command sequence to hangup the phone.

CONNECT RESULT The default string is CONNECT. The Carrier Detect light on most modems normally appears once

communication with a remote system has been established. If your modem can be configured through a DIP switch or by programming the modem, it should always be set so the modem "honors" or does not "force active" carrier detect.

If your modem forces carrier detect, a connect result string must be returned by the modem to have the program automatically abort a dialing progress window and place you in the terminal mode.

When carrier detect is forced, the Script file executes immediately. The connect result string can be used by your Script file to execute only after the connect result string is displayed (examples will be provided later in the manual).

Up to four *No Connect* result codes can be entered. When one is returned by your modem, the program automatically redials the number or calls the next phone entry in the queue. If your modem cannot return any of the default result codes, the program will wait until the dial window period has expired before continuing to the next call.

No Connect Result #1 The default string is NO CARRIER.

No Connect Result #2 The default string is BUSY.

No Connect Result #3 The default string is VOICE.

No Connect Result #4 The default string is empty. If your modem returns another result code to represent an incomplete call, enter it here.

DIAL WINDOW The default window is 20 seconds. This is the amount of time the program waits for carrier detect or a *NO CONNECT RESULT* to be

received from the modem. It is timed from the start of dialing. The call aborts at the end of this time if no result code has been received.

REDIAL COUNT The default number of retries is 0. Values from 0-15 are permitted. This value is the number of times the program will redial a number.

REDIAL PAUSE The default pause is 2 seconds. This is the amount of time the program pauses before dialing the next number. This gives most modems enough time to reset after lowering DTR or sending the hangup string.

After making your changes, select the *NEW* gadget to return to the terminal mode.

PROGRAMMING 2400 BAUD MODEMS

Most 2400 baud modems lack DIP switches and must be programmed using a telecommunications program. This is done by entering a series of AT commands to the modem. The examples below will work with most Hayes or compatible modems. Boot up the program and set the baud rate to 2400 baud. COM settings should be set at 8 bits, no parity and 1 stop bit (8N1). Echo should be ON and Duplex should be set to HALF. The commands are case sensitive.

Type the following sequence of commands to the modem, pressing the Return key after each command:

Command	Meaning
AT&F	Resets modem to factory settings
AT&C1	Honors carrier detect
AT&D2	Honors DTR
AT&W	Write to permanent RAM

Make sure you enter the commands in upper case and the modem echoes back OK after pressing the Return key. If not, enter the commands again.

The last command is important, it writes lines two and three into the modem's non-volatile RAM. Once stored in this way, the commands will not have to be entered again after turning the modem off and on.

TERMINAL SETTINGS

The telecommunications program boots up with the following default terminal settings under the COM menu:

Baud	1200
Word	7
Parity	Even
Stop	1

BAUD The number of bits per second transmitted. If you are calling another system, you must have your baud rate set at a rate the remote system is capable of handling.

WORD The number of bits sent to represent a single transmitted character.

PARITY A bit used for error checking. When the word length is 7, a parity of even is selected. If word length is 8, no parity is used.

STOP The number of bits used to represent the end of a word. One stop bit is the most common.

The program displays the current baud rate and communications parameters on the title bar next to the word COM. A COM display of 1200:7E1 represents a baud rate of 1200, 7-bit word, even parity and 1 stop-bit.

Most systems automatically adjust to your protocol (7E1 or 8N1) when carrier is detected or after you press the Return key once or twice. The system should list the parameters supported.

Occasionally, you may call a system which requires a protocol of 7N1. When this happens you will have to call at 7E1 and then switch to 7N1 after connection is made. A Hayes or compatible modem can only dial when the parameters are at 7E1 or 8N1.

If you have a 2400 or 9600 baud modem and plan to call one of our BBS-PC! bulletin board systems, change your baud rate and continue to the next section.

If your modem does not transmit at 1200 bps, change the default COM settings to 300 baud and continue to the section "LOADING A TERMINAL FILE."

TERMINAL FILES

To start using the telecommunications program as quickly as possible, a sample Terminal file has been provided which contains an MSS BBS-PC! phone number. Each Terminal file contains the following information:

- Phone Book entries
- File Menu selections, except File Receive and Send
- Preferences Menu selections
- Setup Menu selections
- COM Menu selections

Any of these items can be changed as needed, regardless of how the Terminal file is configured. To save changes made to an existing Terminal file, see the section "STORING A TERMINAL FILE," later in this chapter.

The telecommunications program automatically loads a *Default.trm* Terminal file if one exists.

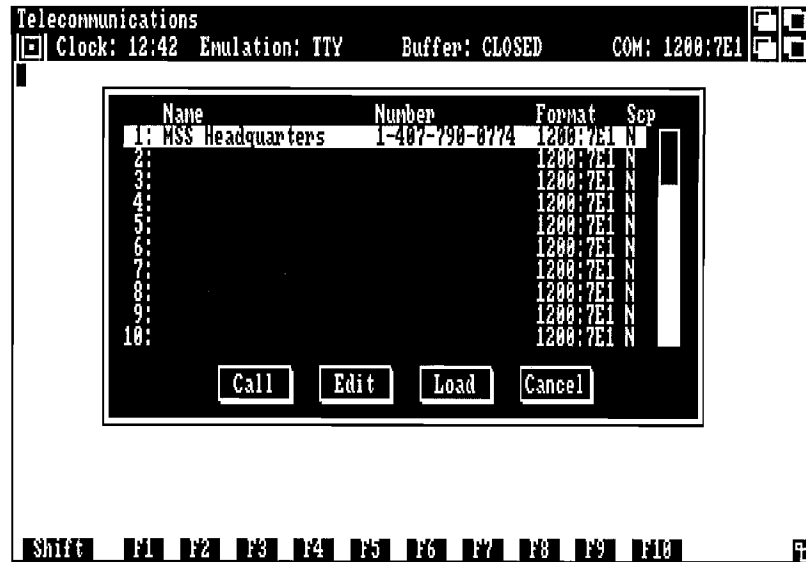
LOADING A TERMINAL FILE

Select *Project Open* and load the *MSS.trm* Terminal file by moving the mouse pointer to the filename and pressing the left mouse button twice. You may also activate the Selection input area, enter the filename *MSS* and press the Return key. After the filename is entered, select the OPEN gadget.

After a few moments, the Terminal file is loaded. The File Requester disappears and you are returned to the terminal mode.

THE PHONE BOOK

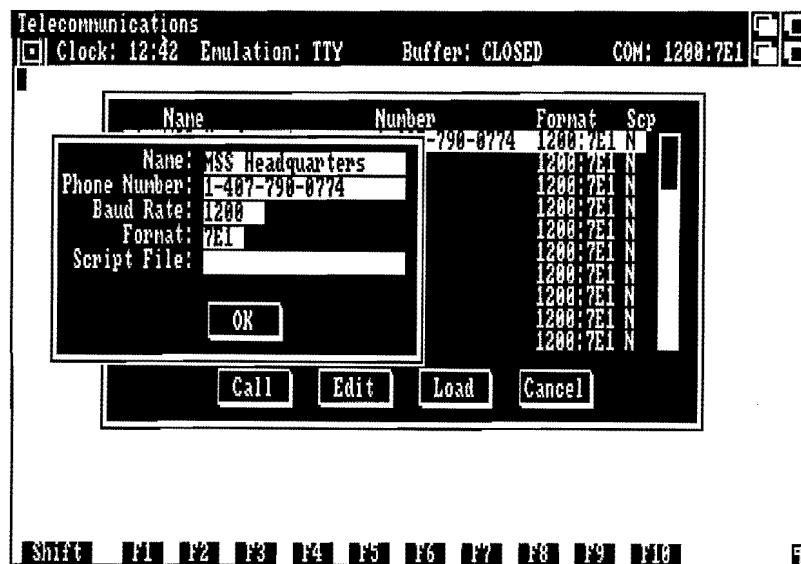
Display the Phone Book by selecting *Project Phone Book*. The following is a picture of a Phone Book:



The Phone Book requester displays up to 40 phone numbers. Each entry stores the name of the service you are calling, the phone number, baud rate, COM settings and an optional Script file. Each phone number has 20 Macrokey definitions associated with it.

Move the mouse pointer to the entry named *MSS Headquarters* and press the left mouse button. The settings for *MSS Headquarters* are highlighted.

Now, please select the EDIT gadget to display the following requester:



Check to see if the phone number displayed is the correct one for your calling area (you *may* need a country code or may *not* need an area code, for example) and the baud rate is one your modem supports. If you have a 2400 or 9600 baud modem, you may change the baud rate.

To change an entry, move the mouse pointer to the proper input area and press the left mouse button. Once the input area is activated, make whatever changes are necessary. After entering your changes, press the Return key.

A maximum of 40 telephone numbers are permitted in each Terminal file Phone Book. A scroll bar lets you scan the full list of numbers.

The same control characters, supported under *Modem Setup*, can be entered as part of the phone number, allowing you to enter dialing delays and codes used by some alternate dialing services.

Select the OK gadget when your changes are complete. Now, use the mouse pointer to select entry number 2. Since it is blank, select the EDIT gadget and enter the following information in

the proper input areas:

Name: Practice
Phone: 1-800-555-1158
COM: 7E1

In the Baud input area, enter the highest baud rate your modem will support. Leave the Script input area empty for now. When all changes are made, select the OK gadget to return to the Phone Book.

If you want to add your own local BBS numbers, you may do so now. The numbers can be entered under whichever entry number you wish.

Below, appears a list of Phone Book gadgets and their functions:

Command	Function
Call	Dials the phone numbers in each of the entry numbers displayed in the Selection input area. Pressing the left mouse button twice on an entry automatically dials the number.
Edit	Displays a requester allowing you to add or alter Phone Book entries. The NEW gadget clears all input areas and OK returns to the Phone Book.
Load	Loads the COM and SETUP selections from the Terminal file. This is helpful for viewing a script file.
Cancel	Returns to the terminal mode.

MAKING A CALL

You're now ready to make your first call. The remainder of this tutorial takes for granted you call our system. Whenever possible, explanations are provided to help you apply the examples in the tutorial to your local BBS system.

Please understand that you do not **have** to call our system; it is a convenience because we can predict your exact interaction - something that would not be possible on a system unfamiliar to us. But if you are unfamiliar with file transfers, this step-by-step tutorial may save you much frustration.

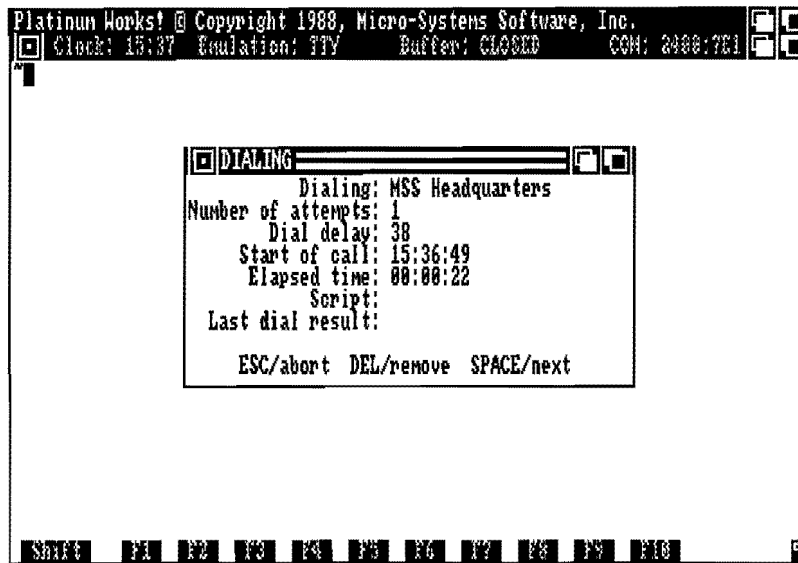
Please select entry 1 in the Phone Book. Select the *Call* gadget. The Phone Book requester disappears and the Dialing Window appears.

THE DIALING QUEUE

A Dialing Queue is a sequence of telephone numbers that will be dialed in order. Numbers are placed in the dialing queue by highlighting the Phone Book entry of the first number, pressing a shift key and highlighting the next number(s). When all numbers have been highlighted, release the shift key and click on *Call*.

THE DIALING WINDOW

The Dialing Window allows you to view each call's progress and displays calling statistics. See the following:



DIALING The entry name currently being dialed.

NUMBER/ATTEMPTS The number of times the number is dialed successfully. If *Preferences Modem Redial* is greater than 0, the number of attempts will be 1.

DIAL WINDOW The value of *Preferences Modem Redial* counted down. When it reaches zero, the next entry in the Queue is either dialed, the number redialed, or you're returned to the terminal mode.

START OF CALL The time Call was selected from the Phone Book.

ELAPSED TIME The difference between the Start of Call and the current time.

SCRIPT The Script file to be executed when a connection is made.

LAST DIAL RESULT The result code returned from the previous dialing attempt. If the result code matches any of No Connect result codes entered in *Preferences Modem*, the next Queue entry is dialed.

While the Dialing Window is displayed, you have several options available:

Command	Function
Space bar	Aborts dialing attempt in progress and skips to the next entry in the Queue. When you reach the end of the Queue the Dialing Window aborts, unless <i>Preferences Modem Redial Count</i> is greater than zero.
Del	Permanently removes the entry from the Queue and continues to the next entry.
Esc	Closes the Dialing Window and returns you to the terminal mode. This key performs the same function as the close window gadget in the upper left-hand corner of the Dialing Window.

CONNECTING

When carrier is detected a tone sounds. Then the Dialing Window automatically closes and places you in the terminal mode so you can

interact with the remote system. The COM and SETUP selections from the Terminal file are loaded when the connection is made. The tone may be disabled from *Preferences Beep*.

If your modem is forcing carrier detect, the program looks for the Connect string result code to remove the Dialing Window. See the section titled "MODEM SETTINGS" for more information.

If carrier detect is forced and the Connect string does not match, you must close the Dialing Window yourself. Either move the mouse pointer to the close window gadget in the upper left-hand corner of the Dialing Window and press the left mouse button, or press the Esc key while the Dialing Window is active.

Once in the terminal mode press the Return key. If you are calling one of our BBS-PC! systems, a "Press [RETURN]" prompt is displayed.

Congratulations! Your computer is now connected to another computer.

The next thing you'll see is a login text file with the name of the system, operating hours and baud rates supported. When that is done, you are prompted to enter your name. After you enter your name, you will enter the city and state where you live. Some systems request different information.

Once the necessary information is entered, several bulletins are displayed. Read these carefully to familiarize yourself with system rules, regulations and membership requirements.

For now, spend some time looking through the various menus and reading messages. If you plan on calling this system during the course of this tutorial, select option A, Add yourself to Membership, from the Main Menu. Complete the application the best you can -- when prompted for a transfer protocol, select XMODEM-CRC. When you are finished, select G or E from the main menu to exit the system.

REVIEWING THE CALL

The telecommunications program supports a review buffer which stores the last 8k (8192 characters) of screen display. This feature should be invaluable in helping you learn your way around a new system since it provides an excellent means to look back on what you have done without wasting valuable time.

Select *Project Review*. A window appears with a scroll bar on the right side of the window. The last text stored in the buffer is displayed. To move line by line through the review buffer, press the up and down arrow keys. To page up and down, press the Shift up and down arrow keys.

The mouse may also be used to accomplish the same task. Move the mouse pointer to the scroll arrows and press the left mouse button, the review buffer scrolls line by line. If you press the left mouse button when the mouse pointer is above or below the scroll bar, the review buffer is paged in the direction of the mouse pointer. To quickly move from one end of the review buffer to the other, or to move several pages at a time, move the mouse pointer to the scroll bar and press the left mouse button, the scroll bar changes color. While holding the left mouse button, move the scroll bar up or down. When you release the mouse button, that portion of the buffer is displayed.

When you are through experimenting, select *View Quit* to return to the terminal mode.

STORING A TERMINAL FILE

Storing changes made to a Terminal file is done by selecting *Project Save* or *Project Save As* and activating the SAVE gadget when the name of the Terminal file is in the Selection input area. A requester appears confirming your desire to replace the file if you use an existing filename - select the OK gadget and your Terminal file is updated with the changes you've made.

If you want to create a new one, use *Project Save As*, erase the filename in the File Requester's Selection input area, enter a new name and select STORE. The original Terminal file is safe, but you now have a new one which includes your new phone numbers.

Select the CANCEL gadget to abort and return to the terminal mode.

QUITTING

The telecommunications program can be exited by selecting *Project Quit* or moving the mouse pointer to the close window gadget in the upper left-hand corner of the window and pressing the left mouse button.

A requester is shown to confirm your intention to exit the program. Select the OK gadget and you're returned to the **Platinum_Works!** screen.

CHAPTER 12B

TELECOMMUNICATIONS ADVANCED TUTORIAL

This chapter contains in-depth information on transferring files, using the capture buffer and the telecommunications program's powerful Script Learn mode. Since portions of this tutorial are conducted while you are connected to a bulletin board system, you may want to read this chapter once, before starting.

THE CAPTURE BUFFER

In the last chapter, you were introduced to the review buffer, which stores the last 8k of screen display. When you need to save more than 8k, or need a permanent record, select *Buffer Open*.

File transfers should not be confused with the capture buffer. File transfers do not take place on the screen, which is the only data the capture buffer can store.

The *Buffer Open* option works in two ways. The first allows you to store the buffer in memory only and functions somewhat like a large *Project Review*.

The second, opens a disk file and stores the capture buffer to disk, each time the buffer is filled.

Select *Buffer Open*. A requester appears and prompts you for a capture buffer size. The default buffer size is 16k. If you desire a larger buffer size, enter the value in the requester's input area. If there's not enough memory for the capture buffer, the requester will display again. Continue to enter a smaller buffer size until the requester accepts the buffer value.

Select the OK gadget and enter the filename *MYCAPTURE.DOC* in the requester which follows. When the capture buffer is stored in a

file, the title bar reads *Buffer: OPEN/FILE*. You may also precede the filename with a drive or volume name like:

DF1:MYCAPTURE.DOC

or

DOWNLOADS:MYCAPTURE.DOC

where the first example stores the buffer on the disk in your external drive and the second example searches for the disk named *DOWNLOADS* and places the buffer there.

Store the capture buffer on a diskette with enough disk space to also hold the two files you will download.

When you don't intend to save your capture buffer, select the OK gadget when the capture buffer filename requester appears. The title bar will appear as *Buffer: OPEN*.

While the capture buffer is open, all screen output is stored in the buffer. When the buffer is full, the contents are saved in the filename you entered and the buffer cleared to hold more data.

If the buffer is not being stored to a file, the program saves the amount entered for the buffer size. When the buffer becomes full, the oldest data in the buffer is removed to make room for new data.

When storing to a disk file, the buffer size does not need to be too big. As long as there is disk space available, the program will continue to save the buffer.

If you open a buffer and specify a filename that already exists, the program adds the contents of the new buffer to the existing file.

Uses for the capture buffer will be included in this tutorial. For now, continue to the next section.

SCRIPT LEARN MODE

A Script file is a means of automating the telecommunications program so it interacts with a remote system without user input. Script files can be as simple as logging onto a system automatically, or sophisticated enough to wait until a specific time, call a system, transfer files, leave a message and terminate the call -- all unattended.

Script files can be built in two ways: with the interactive Learn mode, or in the wordprocessor, much as a program or batch file is written. The command language for Scripts is fully explained in Chapter 15. This section concentrates on the Learn mode.

The program paves the way to using the Script language with the Learn mode. There are two Learn mode keys, Left-Amiga L and Left-Amiga K. Left-Amiga L displays a wait prompt string and responds with your reply and Left-Amiga K displays a wait prompt and responds with any legal Script command. For this exercise you'll be using Left-Amiga L.

Please display your Phone Book. Select a number for a system where you have membership access and activate the Call gadget. When connected, you should see the "Press [RETURN]" prompt. Press Left-Amiga L and a Wait string requester displays:

Press [RETURN]|

This is the string the Script file looks for when carrier is detected. The | and \ characters represent a carriage return and linefeed, respectively.

When the Learn mode is activated, the program displays the last 15 characters and uses it for the Wait string. While this is acceptable under most circumstances, things like line noise (bad phone conditions where characters fail to display or extraneous characters appear) can scramble the Wait string just enough that the Script fails to recognize the string. The result, a stuck Script. By editing the Wait string to look for a shorter number of characters, you decrease the chances of

a Script failing.

Select the input area of the Wait string and move the cursor to the beginning of the input area by pressing the Left-Arrow or Shift Left-Arrow key.

Use the Del key to remove all the characters but *RN/*. The program now has to recognize only three characters instead of 15. When you finish editing, press the Return key. A Reply requester appears. Here you enter the information you want the Script to type for you. Enter a |, since the vertical bar represents a carriage return. Select the OK gadget or press Return to satisfy the Reply requester.

The Reply requester enters the carriage return as if you had pressed the Return key yourself. When the opening login text is displayed, a "*Your name:*" prompt appears. Press Left-Amiga L again.

Edit the input area until *name:* appears and press Return. When the Reply requester appears, enter your name and a vertical bar in the Reply string. For example:

Rawls Sansone|

Select the OK gadget or press Return. The next prompt asks for your system password. Press Left-Amiga L and edit the Wait string to *Password:*. The Reply string requester now appears. Enter your password, add a vertical bar to the end of the password and press the Return key.

Congratulations! You have just created a Script file to automate your login to this system.

STORING A SCRIPT FILE

Select *Script Save*. When the File Requester appears, enter *LOGIN* in the Selection input area. Select the STORE gadget to save the Script file for future use.

If you are calling long-distance, you may be wondering if there isn't an

easier way to learn. There is. The next section walks you through a couple of file transfers. One of the files contains a national listing of BBS-PC! bulletin board systems. From that list, you should be able to find a BBS in your local calling area.

FILE TRANSFERS

File transfer terms include phrases such as "*download*, *upload*, *Xmodem protocol*" and others which may be new to you.

By the time you finish this tutorial, you will have a working knowledge of transferring files and these terms will no longer be unfamiliar.

What you will do now is find the file transfer area of the bulletin board system and download two files. Downloading is a process where the remote system sends you a file that you store to disk. Uploading is just the opposite, you send the file and the bulletin board system does the receiving.

STARTING A DOWNLOAD

If you are calling our system, enter *F* from the Main Menu and press Return. When prompted for the file area, select option 4, which applies to Amiga computers.

The file transfer menu contains various options for displaying the files which can be downloaded. Feel free to explore these at your leisure. Right now, at the menu prompt enter *D* to Download a file and press Return.

You are prompted for a filename. Enter *ARC016* and press Return. The following text appears:

```

[Clock: 09:41 Emulation: ITY Buffer: CLOSED COM: 2400:7E1]
K)ill your file C)atalog of files
R)ead a file N)ew files
U)pload a file S)earch
+-----+
+ SYSTEM OTHER +
+-----+
H)elp E)xit file area
T)ime on system G)oodbye
X)pert on/off
?List functions
+-----+

[9998 mins] File Func (? for menu): d
File name: ARC016
File size is 63104 bytes
Download time: 00:04:22
Switching to 8N1 for ZMODEM
Starting ZMODEM transfer
Use ^X to cancel download
[
SHIFT F1 F2 F3 F4 F5 F6 F7 F8 F9 F10

```

Displayed are the number of blocks it will take to send the file, the approximate time, the protocol and the procedure for aborting the download.

When you reach this point you know the bulletin board system has accepted your request to download a file. It is now waiting for the program to send it special information to start the file transfer.

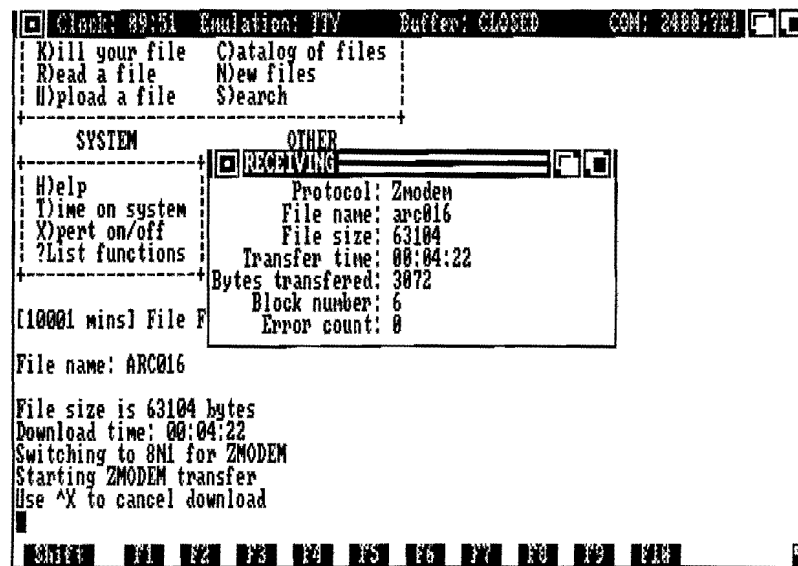
If your terminal parameters are 7E1, a message appears to inform you that BBS-PC! is switching to 8N1. Xmodem protocol requires 8N1 for file transfers. Both BBS-PC! and the program temporarily switch parameters until the file is transferred.

File transfer protocols send a file in small portions, known as blocks. The actual time it takes to transfer a file may vary, depending on the efficiency of the remote system and your computer.

Select *File Protocol Xmodem-CRC* and verify that *FileType Binary* is checkmarked and *File Auto-Chop* and *File EOL-Conv* are both ON. These options are explained later.

When the protocol is correct, select *File Receive*. A requester appears, and prompts you for the filename the program should use to store the file. For simplicity, you should use the same filename, but it is not required. Use the *File Path* command to store the file on a disk other than the current. When the File Path requester appears enter the drive or volume path to where your downloads should be saved.

Press Return after entering the filename. A file transfer window appears and looks similar to the one below:



As the blocks are received, the counters in the transfer window increase until the entire file is transferred.

When the file is successfully transferred, the window disappears and a bell sounds. The bell may be disabled with *Preferences Beep*. At that point, the bulletin board system displays a transfer successful message and waits for your input.

If there is a long delay between the request to the remote system to start a file transfer and the time *File Receive* is selected, the remote

system aborts the transfer.

Should this happen, repeat the procedure again. If the timeout occurs after you select *File Receive*, move the mouse pointer to the close window gadget in the file transfer window and press the left mouse button. The window disappears and a **Transfer unsuccessful !!** message is displayed.

There is one more file you need to download. From the menu, select *D*, enter *MSS.ARC* and press the Return key. When the bulletin board system displays its download information, select *File Receive* from the program. Enter the same filename and press Return. If possible, store both files on the same drive.

When the transfer is complete, spend a short time looking around the system. If you have time, display each of the menus before logging off. They will be used to show uses for the capture buffer.

ABORTING A DOWNLOAD

Once in awhile you may start downloading a file and decide to abort, either because you lack disk space, excessive line noise is increasing the transfer time or the time required for the file transfer is too long to wait.

Most file transfers can be aborted by pressing a Ctrl-X. Other protocols require a BREAK. To send a BREAK, press Left-Amiga C. Most of the systems you call should give instructions on the procedure for aborting a file transfer.

To abort after the program starts receiving a file, select the close window gadget in the file transfer window. That prevents the program from receiving any more data and sends the abort command to the remote system.

Telecommunications programs and bulletin board systems use protocols for transferring files. Each protocol functions differently. **The most important thing to remember when transferring files with the program is**

that your system and the remote system use the same protocol.

USING YOUR DOWNLOADED FILES

There is a wealth of software to be found on bulletin board systems. Most of these programs are *public domain* or *shareware*. *Public domain* programs allow free distribution and modification. *Shareware* programs ask for donations if you find the program useful. You should not be transferring commercial programs. The unauthorized distribution of commercial programs is called piracy and is a crime.

Programs can be grouped by their filename extensions. For example:

Extension	Type of file
.ARC	A file or collection of files stored using a special packing technique that creates a smaller file. The file size reduces transfer times and long-distance phone bills. These files and the program used to create them are generally called <i>arc files</i> . Other file compression extension are .PAK and .ZOO . ZOO files are very similar to ARC files; PAK files will automatically expand themselves when you type the filename from CLI. There is one other common compression program, Warp, the extension for which is .WRP . Unlike the other schemes which act on <u>files</u> , .WRP compresses an entire <u>disk</u> for transfer. Except for PAK files, you need a utility program to expand files with these extensions. ¹
.C	C programming source code.
.EXE	Executable programs. You won't see too

¹Some files on BBS's are erroneously labeled with one of these extensions. The file may be compressed in another scheme or none at all. If one scheme doesn't work, try another.

many files with this extension since AmigaDOS does not require them. Other similar extensions are: **.COM** (command) and **.BAT** (batch file).

- .HAM** Hold and Modify file. See **.PIC**.
- .MSB** AmigaBASIC program. Similar to **.BAS**. These files must be run with AmigaBASIC, they will not run by themselves.
- .PIC** IFF graphics file. Similar to **.IFF**. These pictures can be viewed with many popular **SHOWILBM** or commercial "paint" or "draw" programs. Another image extension is **.GIF**.
- .DOC** A document file, usually documentation that accompanies a program. Text files are also labeled with **.TXT**.

You downloaded two files. *ARC016* is an archival program you use to extract the individual files from *MSS.ARC*.

ARC must be executed from CLI. If you do not have a CLI window open, go to the Workbench window, open the System drawer and select the CLI icon.

Next, you need to change to the disk where the downloaded files are located. If they are not on the current disk, enter the following:

CD DF1:

or

CD DOWNLOADS:

where the first example places you in your external drive and the second looks for the disk with the volume name of *DOWNLOADS*.

Both of the files you downloaded need to be on the same disk. The program created a project icon for the two files. If they are not on the same disk, return to the Workbench window and move the file icons from one disk window to the other.

When you are on the same disk as both files, enter the following:

ARC016 E MSS

and press the Return key. After a few moments the message, *Extracting file*, appears until the following files are displayed:

Filename	Description
----------	-------------

ARC.DOC	Documentation on use of ARC.
---------	------------------------------

BBS-PC.LST	List of BBS-PC! systems nationwide.
------------	-------------------------------------

FIXOBJ	Program to fix end of hunk padding for some executable programs.
--------	--

Many file transfer protocols add extra characters to a file to round the file off to an even multiple of the block size. This extra "padding" prevents executable programs, which run directly from Workbench or CLI, from loading and displays the *File Not An Object Module* message. This is a limitation of AmigaDOS and is another reason ARC is so popular. ARC'ed files can be padded, yet the individual members of the arc file extracted without problem.

When *File Auto-Chop On* is selected, the program removes the extra padding. In extreme cases, you may download an executable program which fails to run because the padding the program removed needed to be there. When this happens, download the program again with *File Auto-Chop Off* and run FIXOBJ to process the file.

Print *ARC.DOC* and *BBS-PC.LST* in the wordprocessor so you can refer to them later.

UPLOADING A FILE

Besides downloading files, you may have need to upload. Many bulletin boards require that you upload a file in exchange download privileges.

The sample file you upload will be the Script file you created earlier. If you are calling the same BBS when you created your Script file, select *Script Load* and load *LOGIN.scp*. If you're calling another system don't load *LOGIN.scp*.

Before you become confused, not only are you uploading the *LOGIN.scp* file, you are also going to use it to automatically log into the system.

From the terminal mode, select *Script Go*. Now select *Project Phone Book* to call the BBS.

Once you're connected, the Script file should automatically log you on. If the Script fails, examine what was displayed on the terminal and compare it with the Wait string. Chapter 15 contains more information on the use, creation and editing of Script files.

Enter the commands necessary to enter the file transfer area of the bulletin board. Enter *U* for Upload a file. A message appears, and prompts you for a filename. Enter your lastname, first initial and press the Return key. If you're prompted for a section to upload the file, select the one for Commodore Amiga.

A file description prompt appears next. Enter **Test file - delete** and press Return. The bulletin board system displays the amount of free space for uploads.

The host system displays a prompt showing the transfer protocol it's expecting. Select *File Protocol* or *Project Info* to confirm that the

program's protocol is correct.

If the protocols don't match, select the correct one. Now select *File Send*. When the requester appears, enter *LOGIN.scp* and press the Return key.

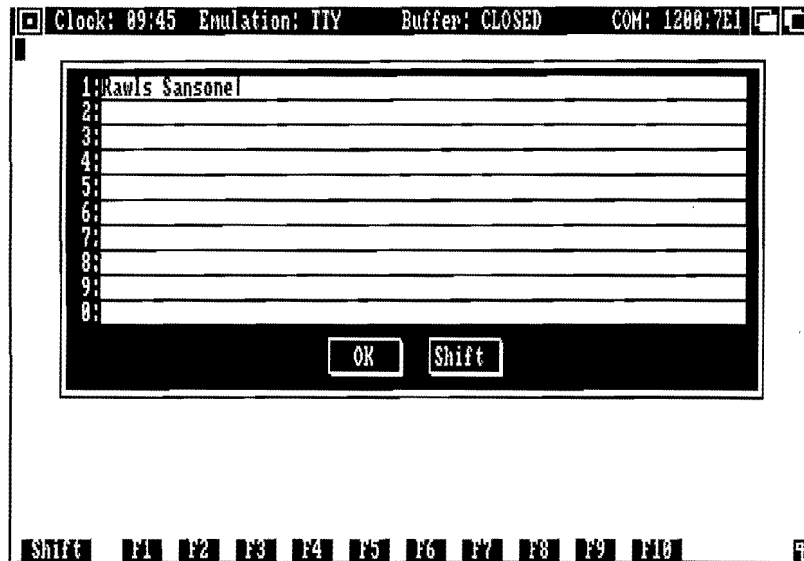
When the file is loaded, a file transfer window appears. The filename, number of blocks and approximate time of transfer displays. When the transfer is complete, a bell sounds and the window disappears.

You have now learned the art of uploading and downloading.

MACROKEYS

Macrokeys are used to send many characters when a single key is pressed. In situations where you enter the same information, time and time again, a macrokey is the perfect solution. For example, use a macrokey to enter your name when logging onto a system or signing messages. Twenty Macrokey definitions are stored with each telephone number.

The program uses the Function keys as user-defined macrokeys. Twenty macrokeys are available and executed by pressing the ten Function and the ten Shifted Function keys. Select *Setup MKeys* to display the following:



A macrokey can contain as many as 64 characters. In the macrokey, you can use the following special characters:

Character	Function
	Vertical bar. Sends a carriage return to the terminal or modem.
\	Backslash. Sends a line feed to the terminal or modem.
^	Carat. Sends the next character's "control" value. For example, ^A would send Ctrl-A.
~	Tilde. Causes a one second delay before sending the next character in the macrokey.
'	Reverse apostrophe. Causes a 100ms delay between each character following in the macrokey. Slows it down to typing speed.

The first ten macrokey definitions appear in the requester. To define a macrokey, use the mouse pointer to activate a macrokey input area. Macrokey number one is executed when the F1 Function key is pressed, or the F1 gadget at the bottom of the program window, selected with the mouse pointer.

Select the SHIFT gadget to define a macrokey that would be executed by pressing a Shift Function key. The gadget changes color. Toggle the Shift gadget to switch between the Function and Shift Function macrokey definitions.

There are two other gadgets found on the macrokey requester. Select the NEW gadget to clear all macrokey definitions. A prompt appears to confirm the request. The OK gadget returns to the terminal mode and uses the defined macrokeys.

Macrokeys can be executed with the mouse by moving the mouse pointer to the Function key gadget on the bottom of window and pressing the left mouse button. Precede a Shift Function key by clicking the Shift gadget, then the Function key gadget. When *Preferences Border* is *Off*, macrokey gadgets do not appear on screen and must be executed by pressing the Function keys on the keyboard.

WINDOW SETTINGS

The program offers much flexibility for adjusting the terminal mode. Character size, the number of colors which can be displayed and the maximum number of lines and columns are all user-configurable.

This section does not review the individual items found in the *Preferences* menu, that is done in Chapter 23. Instead, this section provides you with additional information to help you configure the program's terminal in a suitable manner.

If the program cannot find the font selected from *Preferences Font*, the built-in Topaz 8 font is used and nothing is checkmarked under *Preferences Font* pop-out menu.

The program uses two fonts found on the master disk: IBM.FONT and IBM5.FONT. These fonts are located in the **fonts** sub-directory and must be on the disk you boot your Amiga with when asked to insert a Workbench diskette. These fonts are identified by the program as *Preferences Font 5x8* and *Preferences Font 8x8*.

If you do not wish to boot your Amiga with the program disk, copy the proper files to your boot disk. The following *files* must be copied and the appropriate **directories** must be created:

```
ibm.font
  ibm (dir)
    8
ibm5.font
  ibm5.font (dir)
    5
```

Except for *Preferences Font*, when a *Preferences* menu option is selected, the text displayed on the terminal is lost. This is necessary since the program opens a new window or a custom screen to adjust to the new settings. It is recommended you change your *Preferences* settings before connecting to a remote system.

When *Preferences Border* or *Preferences Title* is *Off*, the window's size and position returns to its default.

For a 132 column display, select *Preferences Font 5x8* from the telecommunications menus and *Overscan Horizontal* from the **Platinum Works! Project Preferences** screen menus.

When using the interlaced display mode, some fonts may become less than perfectly legible because the rows are spaced too closely. Use the *Preferences Leading* option to alter the spacing between rows. The default value is 0 points. It can be increased in one-point increments to a maximum of 36 points. This will change the number of rows displayed.

Use *Project Info* to determine the maximum number of lines and

columns which can be displayed on the terminal. *Project Info* automatically calculates the values based on the *Preferences* settings.

TERMINAL EMULATION

The program emulates six popular terminal types. Three of these are the TTY; DEC (Digital Equipment Corporation) VT-100, VT-102 and VT-52 terminals; and Tektronix 4010 terminals..

The first terminal type, TTY, is also known as a "dumb" terminal. TTY terminal emulation displays IBM graphics when *Preferences Font 5x8* or *Preferences Font 8x8* is selected.

When using VT-100, VT-102 or VT-52 terminal emulation, you should be aware of the following:

To display VT-100 graphics, select *Preferences Font 5x8* or *Preferences Font 8x8*.

132 column display is supported, but the actual number of columns depends on the font size selected and your *Preferences* options. See the section titled, "WINDOW SETTINGS," for more information.

Eight programmable Function keys are supported, PF-1 to PF-8. Each Function key corresponds to its programmable Function key counterpart. For example, PF-1 can be executed by pressing Left-Amiga F1.

Arrow key and keypad emulation is also supported. Use the HELP key to emulate the keypad's comma.

ADVANCED FILE TRANSFERS

This section briefly describes some of the more advanced applications for the program file transfers.

FILE EOL CONVERSION AND TEXT FILE TYPE

When transferring text files from one type of computer to another, conversions to the end-of-line (EOL) characters are sometimes necessary.

AmigaDOS normally uses a LF (line feed) as its EOL character. Some computers require a CR+LF (carriage return and line feed) to make viewing the text file possible.

When *File EOL-Conv On* and *File Type Text* are selected, the program converts the EOL characters in the following manner:

When *File Receive* is selected, the program converts a CR+LF to a LF only.

When *File Send* is selected, the program converts a LF only to a CR+LF.

DIRECT TRANSFERS

On occasion you may wish to transfer files directly to someone else without using a bulletin board system.

To do this, you'll have to program your modem to answer the phone. For most Hayes and compatibles, enter the following in the terminal mode:

ATS0=1

and press the Return key. Then select *Setup Duplex Half* and *Setup Echo On* to have both computers display whatever is typed at the keyboard.

Now have the other computer call, using the same *COM* settings.

Once connection is made, follow the same procedures for file transferring as you would with a remote system. They send you a file, you receive it and vice versa.

The program is not designed to perform file transfers unattended with another computer. Our electronic bulletin board system, **BBS-PC!**, is more suited for that type of application.

NULL-MODEM TRANSFERS

Sometimes information must be transferred from one computer to another without modems. This can be done just by connecting the two computers together with a special serial cable called a Null Modem Cable.

This special modem cable (or sometimes an adapter) is manufactured with pins 2 and 3 of the standard serial cable exchanged **on one connector**. Some telecommunications programs require other pins switched, but the program only requires those two. This connects each computers Receive Data to the other computers Transmit Data.

Contact your local dealer for one of these cables or adapters. A null-modem cable cannot be used with a modem and it would not be a good idea to modify your Amiga serial cable.

Load the program and make sure the other computer is using a telecommunications program capable of file transfers with one of the protocols this program supports.

Once the cable is connected, select *Setup Duplex Half* and *Setup Echo On* so anything typed at the keyboard is displayed on both computers. Make sure the other computer is configured for the same **COM** settings.

Now, just follow the same procedures for file transferring as you would with a remote system. They send you a file, you receive it and vice versa.

When two computers are connected in this manner, file transfers of

9600 baud and greater are possible.

COPYING INFORMATION BETWEEN PROGRAMS

The telecommunications program allows you to take data from the capture buffer and insert it into the wordprocessor. Columns of data from a remote database can be placed into your spreadsheet so easily, you'll find yourself wondering how you lived without it. The program does this through an AmigaDOS device called the *Clipboard*. The clipboard device allows the quick transfer of data from one program to another, even if the programs are not the same type. Depending on the size of the material and if you quit the program that has written to the clipboard device, the files is stored in either RAM or on disk in the *devs/clipboards* directory.

Select *Project Review* or *Buffer View*. A window appears with a scroll bar on the right side of the window.

To move line by line through the buffer, press the up and down arrow keys. To page up and down, press the Shift up and down arrow keys. Press the Alt up arrow key to display the beginning of the buffer and Alt down arrow to view the end of the buffer.

The mouse may also be used to accomplish the same task. Move the mouse pointer to the scroll arrows and press the left mouse button, the buffer scrolls line by line. If you press the left mouse button when the mouse pointer is above or below the scroll bar, the buffer is paged in the direction of the mouse pointer. To quickly move from one end of the buffer to the other, or to move several pages at a time, move the mouse pointer to the scroll bar and press the left mouse button, the scroll bar changes color. While holding the left mouse button, move the scroll bar up or down. When you release the mouse button, that portion of the buffer remains highlighted.

Transferring data is accomplished by marking a portion of the buffer you are going to use and then selecting the buffer option.

You may highlight the buffer using the mouse pointer or the keyboard. To highlight an area with the mouse pointer, press and hold down the left mouse button. The mouse pointer turns into a paint roller and the line is highlighted. Move the mouse pointer to cover the range. If the range is larger than the window, the buffer will scroll. When the range is highlighted, release the left mouse button. Press the Esc key to cancel the highlighted range.

To mark a range using the keyboard, find the first line of the range and press the Left-Amiga A anchor key. Use the arrow and Shift arrow keys to highlight the range and press Return to complete the range. Press the Esc key to cancel the highlighted range.

When the range is highlighted, select one of the following:

Command	Description
Copy	Copies the highlighted text from the buffer into the clipboard.
Cut	Removes the highlighted text from the buffer and places it in the clipboard.
Paste	Inserts data from the clipboard into the buffer. If there is not enough free space in the buffer, an Out of memory !! message is displayed.
Print	Outputs the highlighted text to the printer.
Quit	Removes the buffer window and returns to the terminal mode.

Only one range may be entered into the clipboard at a time. The next highlighted range, whether you select *View Copy* or *Cut*, overwrites the existing data in the clipboard. This data is stored on disk, so you can exit the program, load another application and insert the data -- with nothing lost.

If you have enough memory, run the wordprocessor. With the telecommunications program and the wordprocessor loaded, browse through the capture buffer, highlight one of the menus you displayed when you called the remote system and select *View Copy*. Activate the wordprocessor window, select *Mode Paste* and press the left mouse button.

When two programs are loaded that have clipboard capabilities, you can copy or cut portions of the buffer from the telecommunications program and insert it into the other, block at a time. In this manner, you may place copies of each of the remote system's menus into the wordprocessor. This is useful for both reference and for creating scripts.

Inserting data is as simple as highlighting a range from another program, anchoring a line in the program with Left-Amiga A and selecting *View Paste*.

When the line length of the inserted data is greater than the program's window size, the text is wrapped around. Please do not confuse this with word wrap. If the text in the clipboard is boldfaced, underlined or italicized, the control codes used for the special characters may appear.

These same procedures apply to *Script View*. Depending on your needs, you can even move data from *Project Review* and place it in the capture buffer or insert it as part of a Script.

CHAPTER 13A

WORDPROCESSOR MAIL MERGE

Mail Merge is an option that allows *you* to type a personalized document *once* and then print out the same letter for *many* people. All you have to do is type the document one time and merge as many names and addresses to it as you like, from a separate mail list file easily created with the wordprocessor.

Sending out 1000's of seasonal holiday cards to your friends, clients, or family will no longer be a month long project. You simply merge the mailing list file you created with the wordprocessor to the holiday greeting you composed, and the wordprocessor will automatically take the names and addresses from the file and merge them into as many greeting cards as you instructed it to print.

The Mail Merge feature needs two files: a document file and a data file. The document file contains special dot commands that instruct the program where the data file is located and what to do with the information it contains. The data file follows a special format called a sequential data file format. A sequential data file format separates fields with commas and ends records with carriage returns. A field is an individual data element (such as a first name) and a record is a group of fields with something in common (such as an individual's name, full address and telephone number.)

If you created a file of the following names and addresses (several Amiga User Groups across the United States of America and Canada) with the wordprocessor, a personalized letter can be produced for each name and address on the mailing list.

Mr. Joe Lowery
AMUSE
151 1st Avenue
New York, NY 10003

Mr. Tim Avery
1st Amiga User Group
543 Old County Road
San Carlos, Ca. 94070

Mr. Bill Hogsett
CA-Aug
3715 Townley Road
Shaker Heights, Oh. 44122

Mr. Tim Grantham
TPUG Magazine
5300 Yonge Street
Willowdale, Ontario, M2N 5R2

Mr. Michael Dalton
SCAUG
P.O. Box 2098
Merritt Island, Fl. 32952

Ms. Roxann Pappas
AUG
P.O. Box 1377
Rapid City, S.D. 57709

Mail Merge will take the above names and addresses, merge them into a document, thus allowing you to send out several letters easily, without the hassle of typing the names individually on every letter.

You may have noticed by now that there is no pull down menu for Mail Merge. This is because you operate Mail Merge with Dot Commands.

Dot Commands are usually two alphabetic letters with a period symbol or Dot (.) placed before them. If you press the F2 key on the top of your Amiga keyboard, you will see a list of several Dot Commands the wordprocessor uses for all purposes, including Mail Merge.

This chapter is designed to help familiarize you with the Dot Commands that Mail Merge uses. Several examples and exercises are provided.

The following Dot Command guide will help you learn the meanings of the Dot Commands Mail Merge uses. Please notice the period symbols or the Dot (.) before two alphabetic letters.

.DF= Open DATA FILE
This will specify the name you give the data file.

.RV= READ VARIABLE
This will specify the names of the variables and value orders

.AV= ASK for VARIABLE

.SV= SET the VARIABLE

IMPORTANT

Each dot command must be entered in the first column, on a line, all by itself, before the actual text.

For example, one format you may find convenient is:

.DF=ADDRESS.DAT
.RV=COMPANY, ADDRESS1, ADDRESS2, ADDRESS3, NAME

AUGUST 20, 1988

&COMPANY&
&ADDRESS1&
&ADDRESS2&
&ADDRESS3&

Dear &NAME&,

Micro-Systems Software is always interested in the ideas and needs of its customers. Many of our most spectacular innovations for the Amiga began as roughly sketched concepts presented in "wish lists" submitted by our users. Other ideas came from discussions with members of user groups at our frequent visits to demonstrate new products and to solicit feedback from them.

So, &Name&, please feel free to send us your written comments and suggestions, or to invite one of our representatives to speak before your group.

Sincerely,

Steve Pagliarulo
Vice President
Research & Development

If you wanted to send a letter to several Amiga User Groups you would type a letter similar to the above and then create a data file of names and addresses like the following:

AMUSE, 151 1st Street, "NEW YORK, NY", 10003, Mr. Joe Lowery

Mail Merge will place AMUSE where you inserted &COMPANY& on the form letter.

The ampersand (&) is needed to surround the variable you want inserted into your letter. DO NOT use ampersands in Dot Commands, or you will not receive correct operation.

Mail Merge will look for the following when inserting the variables to your letter:

AMUSE will be inserted into the letter, rather than &COMPANY&.

151 1st Street will be inserted where you place &ADDRESS1&.

New York, NY will be inserted where you place &ADDRESS2&.

10003 will be inserted where you place &ADDRESS3&.

Mr. Joe Lowery will be inserted where you place &NAME&

AMUSE will be inserted one more time where you inserted &COMPANY&. (In the middle of the first sentence.)

You can place the next name and address directly underneath the first one to get something that looks like this:

AMUSE, 151 1st Street, "New York, NY", 10003, Mr. Joe Lowery¶
1st Amiga User Group, 543 Old County Road, "San Carlos, Ca.", 94070,
Mr. Tim Avery¶

You do not need to place a space between the different addresses to separate them. All you need is a carriage return after the last

variable for one set of data. (Don't worry about part of the record appearing on a different line as long as the records are separated by carriage returns and fields are separated by commas.) Mail Merge will insert each address into your letter properly without the spaces. However, putting a space between the different addresses (in our case, between AMUSE and 1st Amiga User Group) will not cause incorrect operation.

IMPORTANT

You MUST place quotes around any text that has a comma (,) in it, or Mail Merge will read it as the next variable. Notice the format of NEW YORK, N.Y. in the AMUSE address. It has quotes around it because city and state is separated by a comma.

When you are finished creating a data file of addresses it may look similar to this:

AMUSE, 151 1st Street, "New York, NY", 10003, Mr. Joe Lowery¶
1st Amiga User Group, 543 Old County Road, "San Carlos, Ca.",
94070, Mr. Tim Avery¶
CA-Aug, 3715 Townley Road, "Shaker Heights, Oh.", 44122, Mr.
Bill Hogsett¶
TPUG Magazine, 5300 Yonge Street, "Willowdale, Ontario,", M2N
5R2, Mr. Tim Grantham¶
SCAUG, P.O. Box 2098, "Merritt Island, Fl.", 32952, Mr. Michael
Dalton¶
AUG, P.O. Box 1377, "Rapid City, S.D.", 57709, Ms. Roxann
Pappas¶

You can name this file ADDRESS.DAT and remember, since this is not a .DOC file, it will be stored in ARCHIVE under the *ALL* pattern rather than *.DOC*. This is a .DAT file and you must type the file extension manually (if you choose to use it.)

Notice the spaces inserted after the commas in the above data file. These spaces **are not** necessary, but were inserted to diagram that every name and address does not have to be on one line. Notice how

the TPUG Magazine line has more information then can actually fit on one line. You will receive correct operation, as long as you insert a carriage return at the end.

The above file contains six addresses and will result in the printing of six letters. A data file may consist of more values, and is only limited by the amount of space on your diskette.

The values on every line should always be in the same order to correspond with the order of the variables in the .RV command on the letter. For example, you would not want to put Mr. Bill Hogsett in the place of CA-Aug because when your document printed out it would have Mr. Bill Hogsett in the place of company rather than in the place of name.

If you did not know the zip code for one address, you would have to enter a comma, space, comma (,) after the value, so as to NOT confuse the order Mail Merge reads the items. For example, instead of the AMUSE address containing a zip code, it would look as follows:

AMUSE, 151 1st Street, "New York, N.Y.", , Mr. Joe Lowery

IMPORTANT

This rule MUST be applied to any variable you decide to omit.

If you do not type a comma, space, comma (,) in place of the zip code you do not know, then Mail Merge would have inserted Mr. Joe Lowery in the place of your zip code. Instead, a space will be inserted in the place of the zip code.

Check the data file carefully to make sure you insert each value correctly along with the proper amount of commas and spaces.

You should be familiar with the .DF and .RV Dot Commands by now. You may find it necessary to experiment with them just to get more practice before continuing to the remainder of Mail Merge Dot Commands.

The .AV Dot command (Ask for Variable) asks the user for the data value of a variable.

For example, if you inserted a .AV NAME in your document, when Mail Merge encountered the Dot command, you would be prompted to type the insertion as follows:

NAME?

You will be able to insert variable information yourself with the .AV Dot command.

You could have a letter similar to the following :

.AV=DATE
.AV=COMPANY
.AV=ADDRESS1
.AV=ADDRESS2
.AV=ADDRESS3
.AV=NAME
.AV=BALANCEDUE
.AV=TOTAL

&DATE&

**&COMPANY&
&ADDRESS1&
&ADDRESS2&
&ADDRESS3&**

Dear &NAME&:

Please note &BALANCEDUE& was due in last week. We are sure this is a simple oversight and just wanted to let you know that &TOTAL& is now your new balance because of the recent shipment you received.

Thank you,

Your Friendly Distributor

You will be prompted as Mail Merge encounters the commands, for the following information:

DATE?
COMPANY?
ADDRESS1?
ADDRESS2?
ADDRESS3?
NAME?
BALANCEDUE?
TOTAL?

Depending on the information you supply, your letter should print out similar to this:

August 20, 1988

**Pretend Company, Inc.
127 Vizcaya Street
Pretend, FL
33333**

Dear Mr. Deerson:

Please note \$200.00 was due in last week. We are sure this is a simple oversight and just wanted to let you know that \$400.00 is now your new balance because of the recent shipment you received.

Thank you,

Your Friendly Distributor

The above document will print one at a time each time it is used with Mail Merge. If you need to print more than one at a time, go to the *Print* pull down menu and highlight the *Copies* option with the right

mouse button. Select the number of copies you will need at the prompt. This will allow you to get as much repetition of a document as you like.

If you wanted a prompt to appear in a certain way, you could instruct the variable to do so. For example, if you had a .AV=ADDRESS2 and wanted the prompt to appear:

Enter ADDRESS2 as City, State:

To receive this prompt, you would need to enter the Dot command as follows:

```
.AV="Enter ADDRESS2 as City, State:", ADDRESS2
```

So, to get a prompt to say exactly what you want, just surround it with quotation marks.

You may need to specify the maximum length of a address, zip code, name, or any other information you may place in your documentation. To familiarize yourself with how to specify maximum length, review the following:

```
.AV=ZIPCODE, 5  
.AV="Enter Name as Last, First, Middle:", Name, 30  
.AV=Company, 20
```

The maximum number of characters to be entered is limited only to the portion of the screen width remaining after the prompt.

In .AV=ZIPCODE, 5 you will not be permitted to enter more than 5 characters. The number specified is the maximum amount of characters you may enter for that prompt.

The use of the .SV Dot command is important when you have the same information appearing in several locations of your letter, or you plan to use the same terminal all day to type out several documents.

For example, let us presume you will have a date on each letter you print out for one day. You could, instead of creating a date file with a date, or inserting a date every time, use a .SV (Set Variable) within the document.

.SV=DATE, August 20, 1988

Suppose you had to have the words excellence! and BBS-PC! appear in several places of a document. You could do as follows:

.SV Product1, excellence!
.SV Product2, BBS-PC!

Place these commands at the beginning of your document, inserting &Product1& and &Product2& throughout the document, wherever you want excellence! and BBS-PC! to appear.

Later, if you need to use this letter, but wish to have different insertions, simply edit your .SV commands to display what you want. You should now be familiar with how Mail Merge operates.

Facts to Remember

.DF (Data File)

.RV (Read Variable)

.AV (Ask for Variable)

.SV (Set Variable)

Surround any text containing commas with quotation marks.("New York, N.Y.")

Never use ampersands (&) in Dot commands.

End each line of information with a carriage return symbol. (AMUSE, 151 1st Avenue, "New York, N.Y.", 10003)

Place values and variables in the same order.

Put comma, space, comma, in place of omitted text.

Variable names can be letters and numbers, but **must never** have spaces between them. (ZIPCODE or BALANCEDUE)

The *DF* argument should include the complete pathname if the data file is in a directory other than the current directory (or on a disk other than the one on which the current directory is located.)

Additional information about transferring data between applications is in the Chapter 4 section about the *Clipboard*.

CHAPTER 13B

SPELLING CHECKER AND THESAURUS

THE SPELLING CHECKER

The wordprocessor allows you to create documents easily, while the *Document Spell* options help correct the spelling of your documents with equal ease and reliability.¹

All the *Spell* options for the wordprocessor are displayed on popout menus and are controlled with the mouse or keyboard shortcuts.

The *Document Spell Guess* option checks individual words; *Document Spell Document* checks entire documents; and *Document Spell Window* checks the portion of the document visible in the window. Whether you check individual words, immediately after typing them, or type until the document is complete, and then checks for spelling errors, the *Spell* menu accommodates your style.

The permanent **DICTIONARY** file for the wordprocessor contains more than 103,000 words. You can add your own words to a user-dictionary.

GETTING ACQUAINTED

The *Spell* section of the wordprocessor checks the spelling of an individual word, an entire screen, or a lengthy document. If a word is found that is not in its dictionary, it offers a list of correctly spelled words from which you can choose a replacement. A word not found in the dictionary file, that is correctly spelled, can be added to a file called **USERDICT.LEX**.

¹Words are checked against the 103,792 word Proximity/Merriam-Webster Inc. Linguibase®.

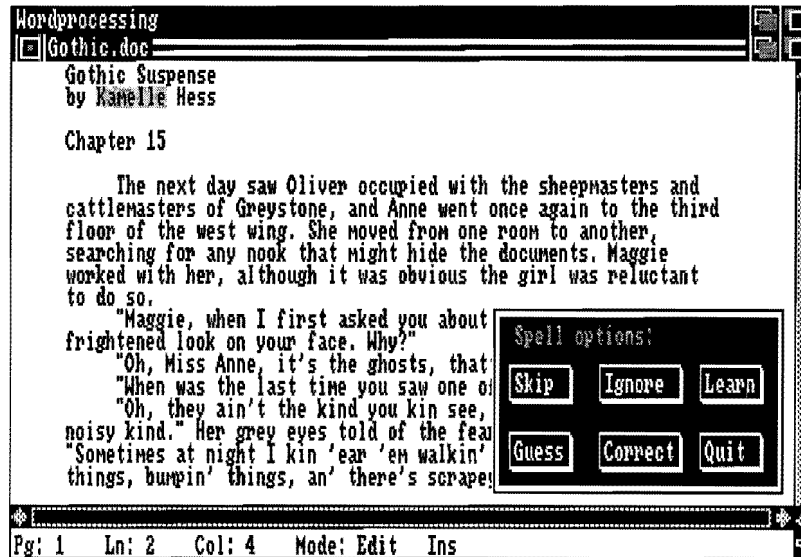
USING THE SPELLING CHECKER

The wordprocessor *Document* menu has several options including *Spell*. *Spell* itself has three options: *Guess*, *Document*, *Window*, and *Continuously*. The following example will help familiarize you with the procedures used with the first option: *Document Spell Guess*.

- Open the sample document "Gothic.doc"(from the *Supplement* diskette.)
- Click the left mouse button on any letter of the word "occupied". ("Occupied" is the sixth word in the first sentence.)

Please note that the entire word will NOT be highlighted. This is the normal operation.

- Release the left button and move to the title bar.
- Click the right mouse button and select *Document Spell Guess*.
- Release the right button. This requester will appear:



This requester presents the word you selected in the sample document and a list of correct words it has matched to that word. Compare it against the highlighted (first) suggestion to verify its correct spelling.

The options, REPL, LEARN, GUESS and CANCEL, are defined below.

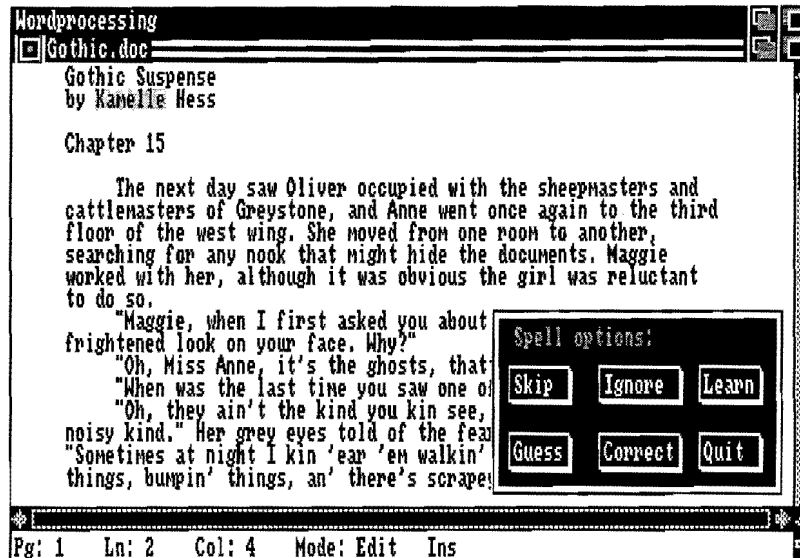
DEFINITIONS

REPL This will replace the highlighted word for the incorrect one, or, you can replace it with another word from among the options. The word in the requester that is highlighted will replace the incorrect word in your document when REPL is chosen.

- LEARN** This will add your new user word to the ~~to the~~ user-dictionary file. In essence, the file is learning a new word.
- GUESS** This will check the spelling of the highlighted word in the requester.
- CANCEL** This will bring you back to the text with which you were working, whether you used the LEARN or REPLace functions or did nothing.

The second option is *Document Spell Document*. You can highlight this option with the right mouse button, enabling the option used to check an entire document for spelling errors at once.

With this option, the highlight will automatically appear on one misspelled word at a time. Another requester appears, allowing you to SKIP, IGNORE, LEARN, GUESS, CORRECT, or QUIT the highlighted word at that time. This is the second requester used to check spelling:



- Access Gothic.doc
- Select the *Document Spell Document* option. The first highlight should appear on "Kamelle".
- Select GUESS by clicking on it with your left mouse button. The first requester will appear. To avoid changing the original text click the left mouse button on CANCEL.

You could have clicked the mouse button on any option if you wanted to have the dictionary LEARN a new word, or if you needed to REPLace the original word with the highlighted word.

- Select CANCEL and the previous requester will appear again. Select SKIP with the left mouse button if you feel comfortable with these options and continue.

If you need more time to experiment, please do so, for the more familiar you become with all the wordprocessor features, the happier you will be with the program.

- If you selected SKIP the word "sheepmasters" is highlighted. If you select QUIT the whole *Document* check process will cease.

The *Document* check process will perform continuously, allowing you to use all SPELL options to correct the text of a document in its entirety.

Please review the following definitions of these options. Without understanding them, you may not use the Spell menu options properly.

SKIP	An option that allows you to overlook a single occurrence of an incorrect spelling. This may be needed because you have to spell a word incorrectly on purpose, to set an example in a Do and Don't book for children. You could have used SKIP for the word "gen'rally" in another example.
IGNORE	This option allows you to overlook or <i>ignore</i> the incorrect spelling of a word THROUGHOUT the document. You may need this to emphasize a point throughout your text.
LEARN	This option allows you to add a word to the user-dictionary. The file is <u>learning</u> a new word.
GUESS	This option brings to screen the same requester as when you selected <i>Document Spell Word</i> . Here, you will check the incorrect word, and

REPLACE it with the correct spelling, or another of the words the DICTIONARY provides.

CORRECT This option allows you to type in a correct spelling or another word, by yourself, without the help or use of the DICTIONARY or user-dictionary.

QUIT This option enables you to quit the spelling checker whether you have performed any of the above functions prior to selecting it.

REMEMBER

The second requester will only appear during a *Document Spell Document* check if the document contains misspelled words. If you select *Document Spell Document* and the requester does not appear, then the DICTIONARY and user-dictionary files do not recognize any misspelled words for the entire document.

The amount of time the wordprocessor requires to check an entire document is directly proportional to the length of that document. Please do not expect the wordprocessor to check a 20 page document in the same amount of time as a 2 page document.

To familiarize yourself with how the above functions operate, simply access the "Gothic.doc" again, and take a few minutes to use each option.

The third option is *Document Spell Window*. When selected, this option checks that specific window; the words that you see on-screen.

Access the Gothic.doc and glide the mouse up to the title bar.

- Select *Document Spell Window* . All the words the spelling checker does not recognize will remain

highlighted when the option is finished checking the screen.

It is now your decision to correct words at this time, or leave them alone until later.

To resume operation, press any key on the board, or click the left mouse button. Upon doing this, the highlight will disappear, allowing you to continue, or correct, any spelling errors.

If you are scrolling from screen to screen, please note, the *Window* option will NOT highlight any partial words you may have on the right and left margins, thus leaving you unaware of any errors. If you want to check partial words, simply place them in a full window, which will allow this option to check them for spelling errors.

The final option is *Document Spell Continuously*. This option toggles between on and off. On is represented by a checkmark on the popout menu. When selected, the document is checked word by word, as you type. It is recommended that if you have sufficient RAM, you move the dictionary files to RAM, and change the DICT: assignment. See Chapter 19, *Moving The Dictionary To RAM*.

THE THESAURUS

The Thesaurus² helps you choose the appropriate word. It is accessed from the *Document* menu. Your word choices are from among the more than 470,000 entries in the Thesaurus.

USING THE THESAURUS

This section will take you, step-by-step, through using the Thesaurus.

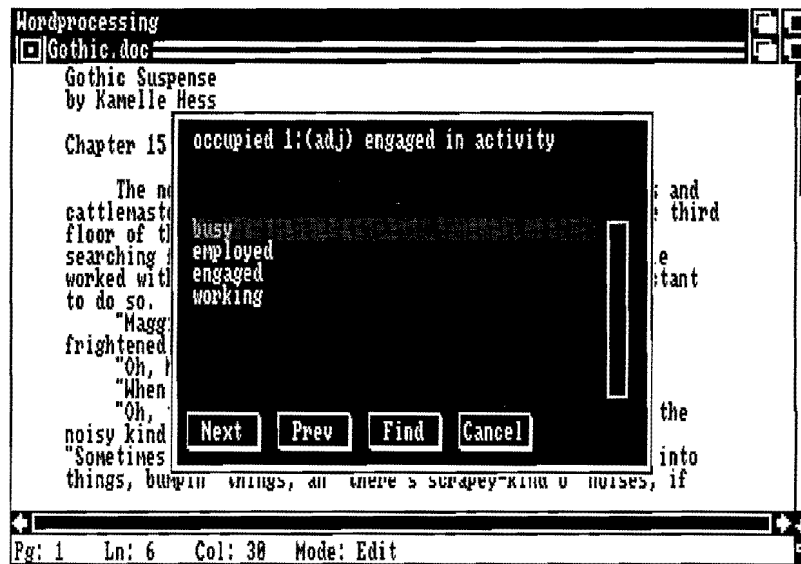
- Select a sample document, (from the *Supplement* diskette) named "Gothic.doc" from *Project Open* and OPEN it to the screen.

²American English Thesaurus is provided by Proximity/Merriam-Webster.

- Click the left mouse button on any letter of the word "occupied". "Occupied" is the sixth word in the first sentence.

Please note that the entire word will NOT be highlighted, but only one letter. This is normal operation for the wordprocessor.

- Select *Document Thesaurus*. The following requester will appear:



Following the word that is being questioned is its part of speech and a definition. The words appearing in addition to "occupied" are the selections the Thesaurus makes as alternatives from which you may choose and fit the definition. More than one definition may be appropriate for a word. To see other definitions and word lists (if available), select NEXT or PREVIOUS. The other options are: CANCEL and FIND. To replace the word in question with one of the suggestions, double click on the suggested word.

Please review the following definitions of these options. Without understanding them, you may not use the Thesaurus properly.

- | | |
|---------------|--|
| NEXT | This option selects the next definition of the questioned word (if one is available.) |
| PREV | Selects the previous definition. |
| FIND | Presents a new list of words. The search is performed for the highlighted word. (In the above example, if you selected FIND with <i>busy</i> highlighted, it would present a list of alternatives for <i>busy</i> .) |
| CANCEL | Quits the Thesaurus. No changes are made to the document. |

CHAPTER 14A

SPREADSHEET GRAPHS

Spreadsheets are marvelous tools for analyzing numerical information. After a while, you get tired of looking at numbers.

Graphs move you from columns of numbers into the instant comprehension of visual representations. It may not occur to someone reading a spreadsheet that expenses have risen 37% in the last three months, but if they see the size of the bars in a graph increase by that much, it is instantly understood the increase is significant. Graphs can easily display numbers in relation to other numbers. A graph showing sales figures related to cost of sales is very effective, but when the difference in size between the bars in the graph is your profit, you can "see" your profit increase as you trim budget costs.

MEMORY REQUIREMENTS

There are several restrictions you should be aware of before beginning. After loading the spreadsheet, a normal 512K Amiga has approximately 180K of free memory available, with 80K used by the Amiga for requesters, re-sizing windows, etc.

This leaves approximately 100K of memory available for your spreadsheet and graphs. A normal 4-color graph uses approximately 35K of memory and an 8-color graph averages 50K.

With a little subtraction (Please use the spreadsheet for this... isn't that the reason you purchased it?) you'll discover that using two 4-color graphs gives you enough room for a 30k spreadsheet. Our tests with a default 16K worksheet allowed three medium-sized 4-color graphs and two medium to full-sized 8-color graphs.

If you need to display several graphs at one time, we strongly recommend you operate the program from CLI without loading Workbench. A maximum worksheet size of 100K is possible if running

the program from CLI and displaying only one graph. These figures may vary depending on your system's environment (number of drives used, etc.).

OVERVIEW

In this chapter, we'll accomplish two things. First, we'll tell you how to create a graph and explain the options available to enhance the appearance of your graphs. Second, we'll show you the *Graph* menu, command by command.

Before we begin, let's cover some general information about Graphs.

WHAT MAKES UP A GRAPH?

Graphs are made up of a series of numbers called element data ranges. Every number within the data range is called an element and each data range makes up an element of the graph.

Once a graph is displayed, legends, group and element labels are used to enhance the appearance of what is shown and make the graph more comprehensible.

These options are covered in detail later in the chapter. Right now we're going to create some graphs using the SALES.SHT worksheet.

CREATING A GRAPH

Please load the SALES.SHT worksheet. If you did not follow the exercises shown in Chapters 10A and 10B, you may wish to go back and review them, so the examples given here can be easily understood.

DEFINING THE ELEMENTS

Graphs are made up of elements. The elements are defined by entering a range of data. The spreadsheet allows up to 6 data ranges

to be defined and each data range can consist of as many cells as you desire. With the Pie and Z-Pie graphs, we recommend a maximum of 10-15 elements for a data range, because a Pie graph uses each cell within the element data range as a separate element of the graph and this could result in a crowded graph.

The first graph we create will be a Pie graph. Using the YTD totals for each city, we'll be able to "see" which city has the most in sales.

With the SALES.SHT loaded, hold down the right mouse button and move the mouse pointer to the *Graph* selection on the title bar. The Graph pull-down menu will appear. Move the mouse pointer down to *Data*, a pop-out menu will appear with the letters A-F. Highlight the "A" and release the right mouse button.

By now you should be familiar enough with the spreadsheet to know that the same menu item you selected with the mouse pointer could have been entered as easily by pressing "/GDA" from the keyboard.

You will be prompted to enter the element data range. Enter the data range F2..F5 by typing it from the keyboard or using the mouse pointer to highlight the cells.

DEFINING THE TYPE

Once the element range(s) for a graph have been entered, the next step is to decide which *Graph Model* will be selected. The spreadsheet supports 8 different models to represent your data. All them will be discussed shortly.

Use the mouse pointer to select *Graph Model Pie*. Hold down the right mouse button and move the mouse pointer to the *Graph* selection on the title bar. The Graph pull-down menu will display. Move the highlight bar down to *Model* and a pop-out menu will appear with 8 selections. Move the mouse pointer to the right and highlight *Pie*. When 9 is highlighted, release the right mouse button.

To double check this, select the *Graph* menu again and highlight *Model* with the mouse pointer. *Pie* should be checkmarked.

We just completed the two necessary steps needed to create a graph. Before we view the graph, let's add one more piece of information that will make the graph understandable.

ADDING ELEMENT LABELS

Viewing a graph without information that connects the elements of the graph to the data in the worksheet can make a graph almost useless. If you viewed the above graph you'll have noticed four elements in the Pie graph with no indication of which element represented which city.

Hold down the right mouse button and pull down the *Graph* menu. Move the mouse pointer down until *Label* is highlighted. Now move the mouse pointer down the pop-out menu that appeared and highlight option "A" for the elements representing Data range "A".

Release the right mouse button and a prompt will appear asking:

Enter element label range: (current address)

Use the mouse pointer to highlight cells A2..A5 or enter the cell range from the keyboard. The element label range will correspond to the element data range defined earlier.

Now your graph is easily understood. Each element in your Pie graph will have a city name attached. There can be no question about which city has the higher percentage of YTD sales when the graph is viewed.

VIEWING

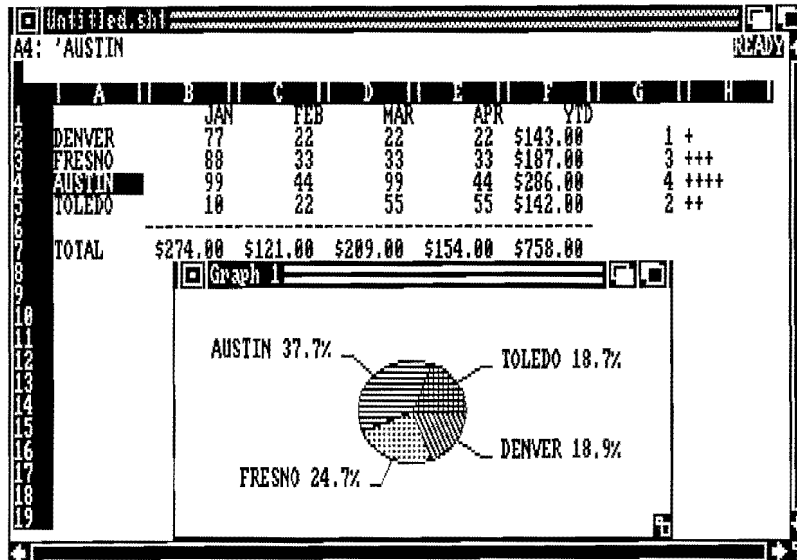
With the element data range and element label range defined, you are now ready to view the graph you created. Viewing a graph can be done by selecting *Graph View* with the mouse pointer, pressing the F10

function key or typing "/GV" from the keyboard.

Now do one of the *Graph View* functions defined above.

Each graph window has a re-size window gadget in the lower right-hand corner of the window and a close window gadget in the upper left-hand corner.

Move the mouse pointer to the graph's drag bar (the top of the graph window), press and hold down the left mouse button and move the window to the lower left corner of the screen. Your graph should appear as follows:



When you move or re-size a graph window it becomes the active window. Notice the title bar is ghosted. Menu items can be selected in this instance, but any menu command requiring keyboard input will be ignored. Move the mouse pointer so it appears in the worksheet and press the left mouse button.

CHANGING VALUES AND RE-DISPLAYING

The great thing about the graphs is you don't have to do anything special when the worksheet recalculates. Whenever the worksheet is recalculated, the graph is re-displayed.

To prove this, move the cell pointer so it is at E5. Change Toledo's April sales from 55 to 88 and press the Return key. Toledo's piece of the Pie increased from 22.1% to 25.2% in the blink of an eye.

While in the custom graph screen, all the menu items are available, but any menu item requiring keyboard input is inaccessible from the custom screen. There are three options that will work around this.

One option is to "drag" or move the graph window down from the top of the custom screen and use the left mouse button to pull down the custom screen's title bar, far enough, that the spreadsheet's input prompts can be displayed.

The other option uses the Left-Amiga N and M keys. While the custom screen is displayed, press the Left-Amiga N key by holding down the Left-Amiga key and pressing the letter "N" on the keyboard simultaneously. If the title bar appears ghosted, press the left mouse button to activate the spreadsheet window. Make any additional changes to the worksheet and press the Left-Amiga M key to return to the custom screen.

By the time you get back to the custom screen, the graph will be redrawn.

The last option is selecting the close window gadget with the left mouse button every time you need to make changes to the worksheet. After making the changes to the worksheet, press the F10 function key to re-display the graph.

When a graph is viewed again, it is shown using its previous position on the screen and its window size.

Since graphs are windows, they can be hidden behind other windows. This can sometimes cause confusion if you have defined a graph, placed it behind another window so it is no longer visible and then try to view the graph again using the F10 function key. Nothing can be displayed, since the spreadsheet knows the graphs have not been closed and therefore can be viewed. Always make sure you close the graph window using the close window gadget located in the upper left-hand corner of the graph window.

With the basics of displaying graphs already reviewed, let's learn how to improve the appearance of your graphs, giving them that "professional" look.

USING LEGENDS AND TITLES

Legends identify data ranges and are alternatives to using element labels. The spreadsheet allows up to six defined data ranges, permitting a maximum of six legends for a graph.

For the next example, we'll reset the graph's element labels, replace them with legends and add a couple of titles.

Use the mouse to select *Graph Clear Elements*. Press and hold down the right mouse button, move the mouse pointer to the title bar so *Graph* is selected. *Graph's* pull-down menu will appear. Move the highlight bar down to *Clear*; a pop-out menu will display. Move the mouse pointer to the right and glide down the pop-out menu until *Elements* is highlighted. Release the right mouse button.

If your graph is still displaying, it will re-draw, this time with the element labels missing. See how important labels, legends and titles are to a graph?

Next we'll select *Graph Labels Legend*. Press and hold down the right mouse button and move the mouse pointer to the title bar.

Highlight *Graph* with the mouse pointer; a pull-down menu will display. Move the mouse pointer down the menu until *Labels* is highlighted. A pop-out menu will appear. Now move the mouse pointer to the right until *Legend* is highlighted. Release the right mouse button. A prompt will appear with:

Enter label range: (current address)

From the keyboard, enter A2..A5 and press the Return key or press the left mouse button and highlight the above range with the mouse. The same range can also be entered using the arrow keys. The information on entering ranges with the keyboard, mouse and arrow keys is covered in Chapter 10B. Please refer to that chapter if you're having difficulties.

If the graph is displayed, four legends with the four city names will appear in the redrawn graph. While the spreadsheet will only allow six legends, you are not limited to one legend per data range. All six legends may be used even when working with one data range.

The graph's appearance has improved with the addition of legends; let's add titles so everyone will know what the graph represents.

Select *Graph Titles First* by pressing and holding down the right mouse button. Move the mouse pointer to the title bar and highlight the *Graph* selection. Graph's pull-down menu will appear. Highlight *Titles* with the mouse pointer and move the mouse pointer to the pop-out menu. Highlight *First* with the mouse pointer and release the right mouse button. A prompt will appear with:

Enter title number one:

From the keyboard, enter "Quarterly Sales Figures" and press the Return key. The graph will re-draw with the new title you entered.

Select *Graph Titles Second* by repeating the above procedure, only this time highlighting *Second* with the mouse pointer. Notice that *First* is checkmarked (meaning it has been defined). When *Second* has

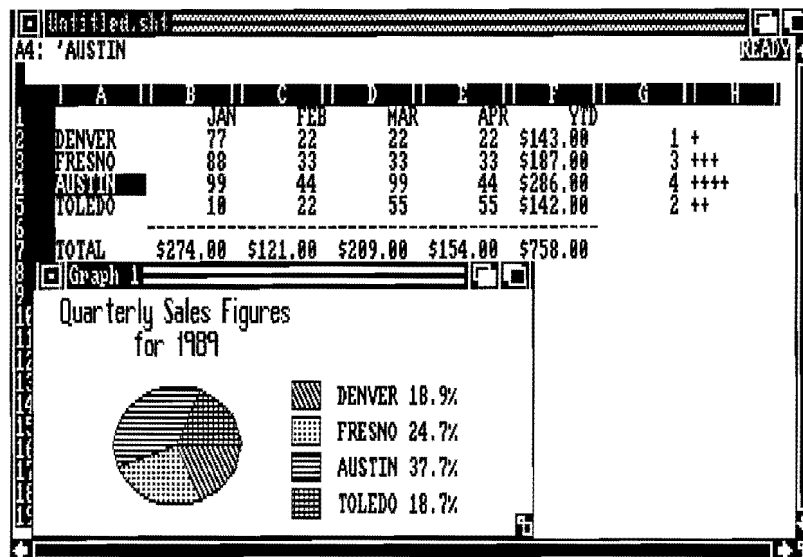
been highlighted with the mouse pointer, release the right mouse button. The following prompt will appear:

Enter title number two:

From the keyboard, enter "for 1988" and press the Return key. The graph will re-draw and include the second title entered.

Notice as each title was entered, the graph's size decreased and the legends moved down in the window. This is perfectly normal since the program will always compensate for additional titles and labels by decreasing the size of the graph. Should the graph's window be too small, portions of the legend, titles or element labels may be chopped off.

Feel free to increase the graph's window size by using the mouse. Move the mouse pointer to the graph's drag bar at the top of the window and hold down the left mouse button. Move the graph window up a bit on the screen and release the left mouse button. Now move the mouse pointer to the window re-size gadget in the lower right-hand corner of the graph window and press the left mouse button. While holding down the left mouse button, pull the re-size gadget to the bottom of the screen. Now release the left mouse button. Your screen should look similar to the one below:



Not only is the graph more presentable, it can be understood by anyone.

DEFINING MULTIPLE RANGES AND MULTIPLE GRAPHS

Pie graphs are generally used when only one data range is being defined. The latter part of this chapter will cover instances when a second data range is useful.

This next graph will be a bar graph which will contain four data ranges.

Select *Graph Number 2* from the *Graph* menu. Press and hold down the right mouse button and move the mouse pointer to the title bar. Highlight the *Graph* selection on the title bar. With the pull-down menu displayed, move the mouse pointer down to *Number*. A pop-out menu will appear with the number *1* checkmarked. Move the mouse pointer down the pop-out menu until number *2* is highlighted. Release the right mouse button.

Any items selected under the *Graph* menu with the *Graph Number 2* checkmarked will pertain only to that graph. If you're not sure which graph is selected, use the mouse pointer to display the *Graph Number* pop-out menu.

The next step will be to define the data ranges which will be the elements in the graph. Select *Graph Data A* from the *Graph* menu. Press and hold down the right mouse button and move the mouse pointer to the title bar and highlight the *Graph* selection. Now move the mouse pointer down the menu until *Data* is highlighted. A pop-out menu will display with the letters A - F; move the mouse pointer to the right until the letter "A" is highlighted and release the right mouse button. The following prompt will appear:

Enter element data range: (current address)

Enter the data range B2..E2, through the keyboard, using the mouse pointer to highlight the range or by using the arrow keys.

Repeat the above steps, this time select *Graph Data B*, notice *Graph Data A* is checkmarked since the range has been defined. When the prompt appears asking for the data range, enter B3..E3 as the data range.

After the data range for *Graph Data B* has been entered, select *Graph Data C*. Enter B4..E4 as the data range.

The last data range will be *Graph Data D*. Enter B5..E5 for that data range.

We have now highlighted each city's sales over a four month period. The next step is to define the graph model we'll use to represent our data. Please do not view this graph until you are told to do so, the reasons for this will be explained shortly.

Select *Graph Model Bar*. Press and hold down the right mouse button and move the mouse pointer to the title bar. Highlight the *Graph* selection. When the pull-down menu appears, move the mouse pointer down to *Model*; a pop-out menu containing the graph models will display. Move the mouse pointer to the right so *Pie* is highlighted and then down one line so *Bar* is highlighted. Release the right mouse button.

Let's add the same legend we used for the Pie graph. Select *Graph Labels Legend*. Press and hold down the right mouse button and move the mouse pointer to the title bar. Highlight the *Graph* selection. When the pull-down menu is displayed, move the mouse pointer down until *Labels* is highlighted. When the pop-out menu for *Labels* appears, move the mouse pointer to the right and highlight *Legend*. When *Legend* is highlighted, release the right mouse button.

A prompt will appear asking for the data range:

Enter legend label range: (current address)

Enter the range A2..A5 using the keyboard, mouse pointer or arrow keys.

If you wish, enter the same titles we defined for the Pie graph, "Quarterly Sales Figures" for *Graph Titles First* and "for 1988" for *Graph Titles Second*. If you have difficulties entering the titles, refer to the section "USING LEGENDS AND TITLES" at the beginning of this chapter.

We're going to add one additional title to this graph before continuing. Select *Graph Titles Y-Axis* by pressing and holding down the right mouse button and moving the mouse pointer to the *Graph* selection on the title bar. When the *Graph* pull-down menu displays, move the mouse pointer down the menu until *Titles* is highlighted. A pop-out menu will display with *First* and *Second* checkmarked if you entered the above titles. Move the mouse pointer to the right until *Clear* is highlighted and then down until *Y-Axis* is highlighted. Release the right mouse button. The following prompt will appear:

Enter Y-Axis title:

Enter "Thousands" and press the Return key. When the bar graph is displayed we'll know what the scale represents.

USING GROUP LABELS

The last addition to the graph will be group labels. Group labels identify "groups" of ranges. When you have more than one range in a graph, the elements from each range are displayed next to each other. To identify each of these element groups, use group labels. Now select *Graph Labels Group* by pressing and holding down the right mouse button and moving the mouse pointer to the title bar. Highlight the *Graph* selection, and when the pull-down menu displays, move the mouse pointer down the menu until *Labels* is highlighted. A pop-out menu will display with *Legend* checkmarked. Move the mouse pointer to the right so *Legend* is highlighted and down one line until *Group* is highlighted. Release the right mouse button and the following prompt will appear:

Enter group label range: (current address)

Enter the range B1..E1. This will place the month under each set of ranges in the graph.

Press the F10 function key to view the graphs. The Pie graph will appear first, in the location it was before you closed the graph window. In the upper left-hand corner, *Graph Number 2* should appear. The graphs will always display in the order that they were defined, number 1, then number 2, etc.

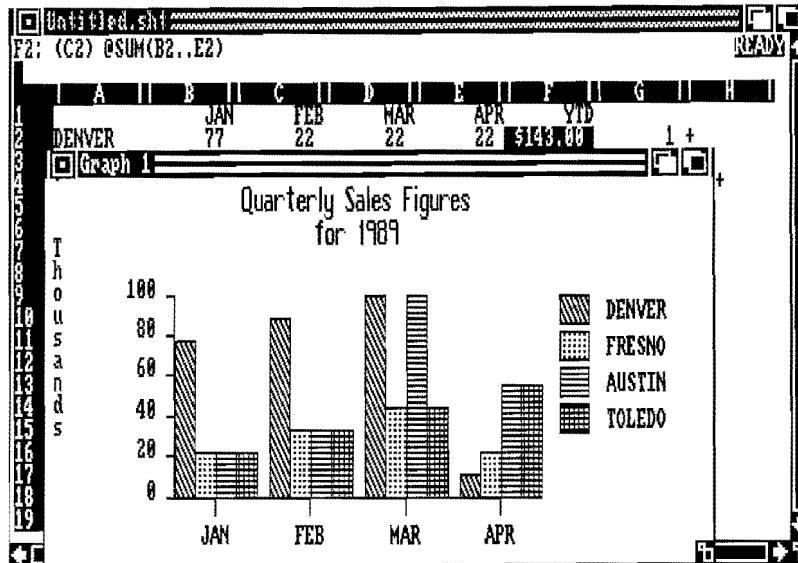
Something to remember when moving graph windows: the window that was activated last by pressing the left mouse button inside the graph window will become the current *Graph Number* selection.

This allows you to activate a graph window and make additional changes that will only pertain to that graph. Even with graphs displayed on the screen, the spreadsheet's menus are still available to make changes to the worksheet.

If you try to use a window's sizing gadget and the window simply "snaps back" to its original size, this usually means the Amiga is running low on memory. This can happen when using multiple graphs with a large worksheet. You can recover by selecting the close gadget in the upper left hand corner of the window and removing that graph.

Select the close window gadget for the Pie graph so only the Bar graph is displayed. On the title bar of each graph window appears two screen depth arrangers on the right-hand side of the title bar. They are used to bring windows to the front or move them behind other windows. Move the mouse pointer to right screen depth arranger on the Pie graph's window and press the left mouse button. *Graph Number 1* will appear to the front. Now press the left mouse button while the mouse pointer is located over that graph's close window gadget. This is an easy way to remove graphs that you do not wish displayed without having to erase the graph definitions.

Feel free to move and re-size the graph window to better display the graph. Your graph should look similar to the one on the next page:



See how each title, legend and label helps make the graph easier to understand? The legends help identify which elements represent which city and the titles are used to explain what the graph represents, with the Y-Axis title giving some meaning to the scale that appears on the left-side of the bar graph. The group labels identify which month each set of elements represents.

You can easily see that the graph could have been expanded to include the YTD figures for each city, as the Pie did.

SAVING GRAPH DEFINITIONS

The program has the ability to store just graph definitions, allowing you to store and retrieve up to four graphs at a time.

This is useful in many instances where you have defined a particular graph and do not wish to go through the trouble of re-defining all the data ranges, titles, labels, etc..

Select *Graph Save* from the Graph menu by pressing and holding down the right mouse button and moving the mouse pointer to the title bar. Highlight *Graph* so the pull-down menu displays. Move the mouse pointer down one item so *Save* is highlighted. A File Requester will appear containing no entries. From the keyboard, type: "SALES1" and press the Return key. When the selection is entered, select the SAVE gadget by pressing the letter "S" from the keyboard or clicking on SAVE.

The disk drive will access and then display SALES1.gph. You are now free to create new graphs, knowing you can retrieve the graph definitions at anytime and have the graphs re-display as they did originally when the definitions were Stored. Remember when Getting a graph definition that any graphs currently defined will be erased. **Always save valuable data often!**

This concludes the Graph Tutorial. Feel free to experiment with your graphs to help you understand the full power of this valuable feature. To return to the worksheet press the letter "R" from the keyboard.

THE GRAPH MENU

This menu contains all the commands you will use in creating graphs. We'll take a look at each command and all the sub-commands associated with them.

Graph Load Graph Save

These commands are used to store and recall all the current graph settings on disk so they can be used later, avoiding having to re-define the graph each time you want to view it. Note that when you save the spreadsheet itself (with *Project Save*), the current graph definitions are stored with the sheet (.sht) file. Why then, a separate command?

Storing the worksheet saves only the current graph settings. With the multiple graph options, this can be up to four graphs. Sometimes this is not practical because of the amount of memory multiple graphs

requires. While there are many instances where you may want more than one graph defined for a spreadsheet, most of the time you'll only be viewing one at a time.

Since saving the spreadsheet itself saves up to four graphs, we've included *Graph Save* to store JUST the graph definitions for alternative views of the same spreadsheet. Store your most commonly used graph with the spreadsheet and then store any required alternate graphs with *Graph Save*. *Graph Save* automatically adds the pattern ".gph" to the end of the filename you enter. Each ".gph" definition file will store up to four graph definitions; when loading a graph definitions file, all graphs currently defined are erased.

To recall the definitions, select the *Load* command on the *Graph* menu with the mouse. The drive will access the disk for a few seconds and a requester display with all the files containing the pattern ".gph". Use the requester as you would with any other **File Requester**.

To save whatever graphs are being viewed to a disk file in IFF file format, toggle the *Pattern:* gadget (in the upper right corner of the requester) from .gph to .pic. This allows your graphs to be shown later with a "SHOW" program, or edited with any of the popular "paint" and "draw" programs.

Graph View

This command draws the currently defined graph (or graphs, if using multiple graphs). When you've completed defining the graph select this command.

This command is duplicated by pressing the F10 function key.

Graph Number

The options under this menu are:

- 1
- 2
- 3
- 4

Use this command to have more than one graph displayed simultaneously. The default selection is *Number 1*. If you want only one graph on the screen at one time you'll never need to change this.

To define additional graphs, select this command and highlight the number of the graph you want defined (1 through 4). A check mark displays the currently defined graph's number.

If defining multiple graphs, saving the worksheet will save both graphs. If you save the graph settings with *Graph Save*, you save both graphs. This is true for however many graphs you choose to define. Remember, multiple graphs mean that EVERY time you view the graph, you will see all the defined graphs displayed.

To remove a graph from a definition that includes multiple graphs, select the *Graph Number* you want removed, then select the *Graph Clear All* command. This completely erases the graph definition.

Finally, note that each graph opens a small window starting at the upper-left hand side of the window. When multiple graphs are defined and viewed, the windows will overlay one another. *Graph View* remembers where each graph should appear and its size. When reviewing a graph or saving its definition, the window size and position will be displayed or stored.

Graph Model

This menu contains the following selections:

Pie
Bar
Line
X-Y
Area
Stk-Bar
Z-Pie
3d-Bar

This selection determines how the data in your graph will be displayed. If you're not certain what these various graphs look like, take some time to display each one of them. You can define your data and keep changing the graph model until you approve of the way the graph shown represents your data.

Several of the graph types have specific restrictions. A list of each of these graphs follows:

Pie. The *Pie* chart can display only one range and only about 10-15 elements. If you put more elements than this into the graph, it will display, but labels may overprint each other and become illegible. Pie charts DO use a second range (*B-Range*), but not to display. The *B-Range* is used to "explode" elements of the pie chart. Exploded elements are pieces of the pie that are separated from all other elements and they stand out from the rest of the elements in the graph. A non-zero value in the *B-Range* explodes the corresponding element in *A-Range*. A value of 0 keeps the piece joined with the pie. If the *B-Range* is not as large as the *A-Range*, elements not specified as exploding are assumed to be normal.

For example:

	A	B	C
1	100	0	
2	110	0	
3	212	1	
4	206	0	

If you define *A-Range* as A1..A4, and *B-Range* as B1..B4, then the third element of *A-Range* (A3) will have its element in the pie chart exploded.

The *Pie* chart is also the only graph (other than *Z-Pie*) where element labels longer than 2 characters are practical, because element labels are printed horizontally in pie charts.

X-Y. Each point in an *X-Y* graph must be made up of two data ranges and must have a minimum of two ranges for a point to appear on the

graph. Additional ranges will be set against the *A-Range*. This effectively gives you up to 5 pairs of ranges totalled (*A-Range* paired with *B-Range*, *A-Range* paired with *C-Range*, *A-Range* paired with *D-Range*, etc.). The *A-Range* specifies the *X-Axis* and any additional ranges specify points on the scale.

Stk-Bar. A stacked bar graph draws each bar as the total of all its elements and shows each element separately within the bar. This causes some people to think the graph scaling (the incremental points along the side of the graph) is incorrect, when in fact it is not.

Z-Pie. Also known as *3d-Pie*. The 3 dimensional pie chart carries the same restrictions and rules as the normal pie chart.

3d-Bar. The 3 dimensional bar chart is unique since it's the only graph where one range could possibly obscure another when the graph is drawn. This means that *3d-Bar* graphs are not necessarily suited to all forms of data. You can adjust the viewing angle with the *Pitch/Yaw* option under the *Graph Options* menu to improve the display in some cases. But there may be some instances when a *3d-Bar* graph is simply not proper.

Graph Data

The options under this menu are:

A
B
C
D
E
F

The spreadsheet Graphs can contain up to six ranges per group with an unlimited number of groups and elements in the ranges. There are two exceptions; the X-Y graph, with only three ranges per group, and the Pie graph, displaying only one range with an effective display range of only 10-15 elements.

To define each range in your graph, select the option with corresponds to the range you want to define. A prompt will appear at the top of the spreadsheet window asking you to enter the range coordinates. You may define the graph range as you would any other range in the spreadsheet. You may type in the starting and ending coordinates of the range (e.g. A1..A10), use the mouse to point out the range, or use the keyboard to enter the range. To point with the mouse, point to the starting cell in the range, press the left mouse button and "drag" the paint roller until the entire range is highlighted. Then release the left mouse button. To point with the keyboard, use the arrow keys to highlight the range. The anchor key "." can be used to anchor the range at a particular cell address. Move the cell pointer to the last cell in the range and press the Return key. The range is immediately highlighted and marked.

This command is defining data ranges ONLY. Labels and all other ranges are defined with additional commands.

Graph Labels

This menu has the following options:

Legend

Group

A
B
C
D
E
F

The proper use of labels is as important as selecting the proper type of graph. An unclear graph makes no point; conveys meaningless information. Labels give data meaning. There are 3 kinds of labels:

Legend. *Legend* labels are used to identify the ranges in a graph. If you define a graph with four different ranges and you want labels on the graph that identify each range, you can define any range of up to

six cells as being the "legend range".

Group. *Group* labels identify a "group" of ranges. When defining more than one range in a graph, you will have elements from each range displayed next to each other. To identify each of these element groups, use group labels.

Element. These labels identify the individual elements within the ranges. Since you can have up to six ranges, there are six different options for elements labels. *Element* labels work very well with pie charts, regardless of length, but it is not recommended they exceed two characters in length with other graphs. With pie charts, element labels are printed horizontally. With all other graphs, element labels display vertically and can be too long to display properly in the graph window. By combining group and legend labels, you shouldn't need to use element labels with the other graphs.

Graph Titles

Clear
First
Second
X-Axis
Y-Axis
Z-Axis

The program permits you to define titles for each graph window. As with labels, titles serve to make your graphs easier to understand. You can have one or two titles above the graph, and one on each axis (across the bottom, or along the side). Titles use *Garnet 9* (if available.) To change this font, the preferred *font* file and directory must be renamed *Garnet*. (For example: delete the *Garnet.font* file and the *Garnet* directory (and it's contents). Rename the *Diamond.font* file and the *Diamond* directory as *Garnet*. This must be done from CLI and you must warm boot after the changes. A 9 size font must be part of the directory.)

Clear. This option erases all the titles for the current graph; use it when you want to start over again.

First. The *First* title is located at the top of the window.

Second. The *Second* title is located at the top of the window, centered underneath the *First* title and smaller in size.

X-Axis. This title appears horizontally along the bottom of the graph.

Y-Axis. This title appears vertically along the left side of the graph.

Z-Axis. This title works ONLY for 3d-Bar graphs (since they are the only graph with a Z-Axis) and appears along the right hand side of the graph.

Whenever you select a title option you'll be prompted for the text of the title. Enter it and press the Return key. The title will be added to the graph immediately.

Please note that whenever you begin using titles, the graph itself must reduce in size to accommodate the additional text. You may need to increase the size of your graph window, if you reduce it, for the graph to remain legible.

Graph Scale

This command displays the following options:

Automatic

Manual

Low-limit

High-limit

The program normally creates the scale for you; this is *Automatic* scaling and it is the default condition. Under most circumstances you will not need to change it. If you should have a special situation, the program is flexible enough to accommodate you.

Automatic. Graphs automatically creates the scale.

Manual. This option lets you specify the low and high points of the scale. Sometimes, you may need to control where the scale starts and stops to make a more presentable graph. This may be needed when you have one element with a very low value, while the rest of the elements are much greater in value. By changing the High-limit of the scaling you force the smaller value to appear a bit more normally in the graph. Used in combination with the next two options, *Manual* scaling lets you do just that.

Low-limit. Specifies the starting point of a manual scale.

High-limit. Specifies the finishing point of a manual scale.

Graph Options

This command contains a collection of miscellaneous options that affect the appearance of your graph. Much like labels and titles, they can used to greatly enhance the picture you make with your graph.

Clear. This option resets all the other options in this pop-out menu. Use this when you want to start over with defining your options.

Lines. This option causes the *X-Y* graph to be drawn with lines connecting the points. This is the default setting.

Symbols. This option causes the *X-Y* graph to be drawn with the symbol located at the *X,Y* coordinate that's specified by the data ranges selected. This is useful for special applications, such as displaying an *X-Y* graph. Select both *Lines* and *Symbols* to see each coordinate symbol connected with a line.

X-Grid. This option turns on the grid lines for the *X-Axis* (which is going horizontally across the graph). These grid lines identify each element group and are especially useful with line graphs where it is difficult to see individual elements.

With the *X-Y* graph, the *X-Grid* has some additional meaning, since the *X-Axis* becomes another *Y-Axis*. In this case, the *X-Grid* is also identifying points on a scale and not elements or element groups.

Y-Grid. This option turns on the grid lines for the *Y-Axis* (which is going vertically up the graph). These grid lines identify each point on the scale and are useful to accurately determine the values of the various elements when viewing the graph.

Z-Grid. This option turns on the grid lines for the *Z-Axis* (which is going from left to right on the *3d-Bar* graph). These become the grid lines for the "floor" of the *3d-Bar* graph's box.

Pitch/Yaw. This is used to specify a new viewing angle for the *3d-Bar* graph along its *X-plane*. This lets you "tip" the graph towards or away from you. A Pitch of 0 has you looking at the tops of the graph, and a Pitch of 90 is straight up and down. The default value is 40. These values are expressed in degrees of viewing angle. After entering the *Pitch* angle, you'll be prompted for the *Yaw*. This is similar to *Pitch*, except that it moves the graph on its *Y-Axis*, allowing you to "turn" the graph side to side. A Yaw of 0 has you looking straight into the sides of the bars, and a Yaw of 90 is looking at the front of the elements. The default value is 40.

These options are stored either as part of the graph definition attached to the spreadsheet, or with the separate graph files.

Graph Clear

This command displays the following options:

All
Data-Ranges
Element-Labels
Legend-Labels
Group-Labels

There will be many times you'll either make a mistake or want to change something about a graph or its current definitions. This command is where you accomplish that.

All. Clears *ALL* the graph settings for the selected *Graph Number*. It gives you a "clean slate" to work with. Please use caution when selecting this option. If you've not saved your graph definitions, they're gone for good and you'll have to re-enter them.

Data-Ranges. Clears the data ranges *A* through *F*. This command erases all the data ranges as soon as you select it. Please exercise a little caution when using it so you don't lose all your data ranges.

Element-Labels. Erases the element labels.

Legend-Labels. Erases the legend labels.

Group-Labels. Erases the group labels.

PRINTING A GRAPH

To print a graph, select *Graph* from the *Print* menu. You must have a black and white or color graphics-capable printer. The color prints of these graphs are quite striking and convey much information.

NOTES

CHAPTER 14B

SPREADSHEET MACRO LANGUAGE

Macros are used to help you automate your worksheet. Common functions can be reduced to a single keystroke. Custom menus can be prepared for persons who may not be totally familiar with your worksheet's operation.

Macros can execute simple or a complex series of keystrokes, saving you time by allowing you to think about your work, instead of how to operate your worksheet.

WHAT IS A MACRO?

A macro is made up of keystrokes which would normally be entered from the keyboard. Special macro keys and macro commands are available to extend the flexibility of your worksheet. These will be discussed in detail later in this chapter.

CREATING A MACRO

We'll use the SALES.SHT you've been practicing with to show some of the more common uses for macros. If SALES.SHT is not loaded into the spreadsheet, please do so now.

The first macro we'll create will be used to sort the sales figures alphabetically by city name. Move the cell pointer to cell J1 by pressing the F5 function key and entering the cell address, or using the mouse or arrow keys to accomplish the same thing. It is always a good idea to keep your macros apart from the actual worksheet to avoid moving the macros later because they are in the way of your data.

With the cell pointer at cell J1, enter the following:

```
'/sda2..f5~
```

and press the Return key. The apostrophe must be used, otherwise the spreadsheet would start processing the macro as a keyboard command; **macros are always entered as labels.**

Let's explain what was just entered to help you understand how the macro language is interpreted by the spreadsheet.

The apostrophe was entered first since the second keystroke was the forward slash "/" which the spreadsheet always interprets as a keyboard command.

The "s" selects the *Sort* menu.

The "d" selects the *Data-Range* command.

The *Data-Range* selection prompts for the cell range "a2..f5" as the range that will be included in the sort.

The "~" is a tilde and is always used when an the spreadsheet prompt must be terminated by pressing the Return key.

If you eliminate the apostrophe and substitute the tilde for the Return key, those same commands are identical to what you would have entered from the keyboard. This makes creating your macros much easier, just write down the keystrokes as you normally enter them to aid you in creating your own macros.

The example given above was only part of the macro. While useful in itself, there is more we can add to make it more powerful.

You may have noticed that duplicate initials exist in several menu sequences. Nothing special must be done to access the first occurrence of the initial. Any successive occurrence must be preceded by a number representing the position of that occurrence in the menu. For example, to access *Project Save*, use /PS; to access *Project Save As*, use /P2S. If you want to select *Print Go Printer*, use /2PGP; to select *Print Graph*, use /2P2G.

At cell address J2, enter the following:

'/spa2~~

and press the Return key. As you can see from the above cell entry, this entry will select the *Sort* menu, select column A as the *Primary-Key* sort column and sort the data in ascending order.

You may be wondering why we didn't combine both cell entries into one, instead of creating two separate entries.

While macros can be up to 240 characters in length, splitting them up into logical, separate cell entries, allows them to be understood and edited more easily than if we had one very long complicated macro. When a macro is executed, it will continue searching down the column for more macro commands until it encounters a blank cell, at which point the macro will end. By entering macro commands vertically, you are allowing enough room to place the comments needed to explain your macro.

The macro we've defined so far will select the proper sort data range, primary-key column and order of sorting. The next step will be to initiate the sort, using the defined data ranges and sort order entered previously. Please enter the following at cell address J3:

'/sg

and press the Return key. That almost completes the macro, the range will automatically be sorted. At cell address L1, enter the following label:

sorts by city name

and press the Return key. This label is used to identify the macro, should you need to modify the macro in the future. While an identifying label is not required, it is recommended.

NAMING A MACRO

Up to 27 macros can be defined, each macro name can be one character in length. The spreadsheet uses the letters of the alphabet (A-Z)¹ for the macro names and character case does not matter. In addition, a special auto executing macro is supported. Any macro with the name "0" (this is the number zero character, not the letter "O") will be executed as soon as the worksheet is loaded into the spreadsheet.

Naming a macro is accomplished by naming a range and defining the first cell entry for the macro as the range that the name references. In cell I1, enter the following label:

' \ a

and press the Return key. The apostrophe was entered to avoid having the entire cell filled with the letter "a". This label serves a two-fold purpose. It not only helps to identify where a particular macro begins, it also serves as a reference point for naming and creating the macro.

With the cell pointer at cell address I1, select *Range Name Right* by pressing "/RNR" from the keyboard. The following prompt will appear:

Enter range: (current address)

If the current address is I1, press the Return key. If the current address is not I1, enter I1 and press the Return key.

The *Range Name Right* command automatically enters the cell range as one column to the right of where the current cell pointer is or the current address entered at the prompt. Since the cell address was entered as I1, the data range will be entered as J1, which is where the macro will begin.

¹The letters M and N are a special case and can be accessed with the Alt-M and Alt-N key combinations. The Left-Amiga M and Left-Amiga N combinations are reserved by AmigaDOS.

That same macro could have been defined by using the *Range Name Create* function, but by using *Range Name Right*, the Range Name is automatically entered for you. If you use the *Range Name Create* function, enter the range name as either "A" or "\ A", character case does not matter. The spreadsheet will execute the macro regardless of which way you enter the macro name.

EXECUTING A MACRO

Macros can be executed in one of two ways. This section covers execution of macros as Left-Amiga *x* commands, where "x" is the macro name, either a letter from "A-L & O-Z" or the number "0".²

Another way is through the creation of custom macro menus, which is covered in the next section.

To execute your new macro, press a Left-Amiga -A from the keyboard. Notice how the menu items are automatically selected, with no input from you at all. See how useful macros are?

Everytime you press a Left-Amiga A, your data will be sorted by city name. Should you add more cities to the worksheet, just adjust the macro accordingly. Once the macro has been named, you can make whatever changes are necessary, as long as the macro is not moved. If you move a macro, the range name will not be able to locate the macro. This means you will need to re-define the macro names anytime a macro changes position. It is for this reason macros should be located away from the body of your worksheet.

To stop the execution of a macro, press a Ctrl-C. A requester with the message "CTRL-C abort !!" will appear. Select the Resume gadget with the mouse pointer or press any key to continue. The macro will halt at the last menu item or function when it was terminated. Press the Esc key to return to the READY mode.

²See Footnote 1, this chapter.

These next macros are other examples that you may find useful for this particular worksheet. Please enter them as follows:

At cell address J5, enter the following:

'/sda2..f5~

and press the Return key. Notice that we left a blank cell between macro \ a and the new macro. Without that blank cell, macro \ a would continue executing commands that were defined for another macro.

At cell address J6, enter the following:

'/spf2~~

and press the Return key.

At cell address J7, enter:

'/sg

and press the Return key.

If you're familiar with the keyboard commands, you can see that this macro performs the same function as the previous macro, only it will sort the data using column "F" as the Primary-Key, which of course will sort the sales figures using the YTD totals.

Let's create a macro comment at cell address L5. Please enter:

sorts by ytd totals

and press the Return key. The last step is to create the macro's range name. Since we've already used "A", let's use the next letter in the alphabet.

Place the cell pointer at cell address I5 and enter the following:

' \ b

and press the Return key. Now select *Range Name Right* by entering "/RNR". When the prompt appears, press the Return key.

You have just created two useful macros. One to sort your sales figures alphabetically by city name and another to sort the sales figures by YTD totals.

Please try both of these macros now. When you have finished, we'll enter two more macros. The first will format the monthly sales figures for each city using the currency format and the other will reset the monthly sales figures to the general format.

At cell address J9 (notice the blank cell between the macros) enter:

'/rfc~b2..e5~

and press the Return key.

At cell address L9, enter the macro label:

formats monthly figures using currency

and press the Return key. The next step is to name the macro; enter the following label with the cell pointer at cell I9:

' \ c

and press the Return key. From the keyboard, enter *Range Name Right* by pressing "/RNR". When the enter range prompt appears, press the Return key.

That takes care of another macro. Everytime you press a Left-Amiga C, the monthly sales figures will display using the currency format.

Enter one more macro before we move on. At cell J11 please type:

’/rfrb2..e5~

and press the Return key. At cell address L11 enter the macro label:

resets monthly figures to general format

and press the Return key. Now we’ll name the macro. Move the cell pointer to address I11 and enter the following macro name:

’ \ d

and press the Return key. Now select *Range Name Right* by pressing "/RNR" from the keyboard. When the enter range prompt appears, press the Return key.

Practice with each of the four macros you have entered. Notice how much time you have saved by allowing the spreadsheet to do repetitive tasks that you would normally have to re-enter each time you wished a function performed.

While having macros available is useful, sometimes it can be confusing if you forget which macro did which function. Wouldn’t it be nice to be able to create your own menus?

CREATING MACRO MENUS

The spreadsheet supports macro commands that allow you to create your own menus. These menu items will appear at the top of the window where the spreadsheet menu items normally appear when entering commands from the keyboard.

Let’s create a menu for the four macros we’ve entered so far. At cell J13, please enter the following:

{menubranh main}

and press the Return key. A couple of points need to be mentioned here. Macros are not always made up of commands that can be entered from the keyboard. The spreadsheet offers many special functions called macro keys and macro commands. These special macro functions are always surrounded by braces "{}". While these commands will be covered later in this chapter, we'll briefly explain the function of the macro command just entered.

The macro command "{menubrand main}" is a special branch command that tells the spreadsheet to look at the macro called "MAIN" to display a menu. While macros are normally executed from the keyboard, the macro command, "menubrand", is used to branch to another macro and look at it in a special way.

To execute the "{menubrand main}" command, we need to define it as a macro command. Place the cell pointer at I13 and enter the following macro identifier:

' \ m

and press the Return key. Now select *Range Name Right* by pressing "/RNR" from the keyboard. When the enter range prompt appears, press the Return key. From this point on, anytime you press a Alt-M, a menu will appear -- but not yet.

The "{menubrand main}" macro command will execute a macro with the range name of "MAIN". Our next step will be to create that menu.

At cell J15, enter the following menu item:

Name

and press the Return key. "Name" will be the menu item. While it is useful to have a name for the menu item, an explanation of what the function does would be even more helpful.

At cell J16, enter the following menu item description:

Sorts by city name

and press Return. That description will appear whenever that menu item is highlighted after executing the menu macro.

The next entry will be the actual function that the menu item will execute. At cell J17, enter the following menu command:

{branch \ a}

and press the Return key. The "{branch}" command tells the spreadsheet to execute the macro with the name "\ a". We mentioned earlier that the spreadsheet will recognize a macro by either a "\ a" or "a", the backslash character is optional.

Now we'll create more menu items that will appear in the same window when the "\ m" macro is executed. When using a "{menubrand}" macro command, the spreadsheet looks horizontally down the row, displaying up to 12 menu items, or until a blank cell is encountered. This means that as many menu items as will appear in the spreadsheet window can be defined and used.

At cell K15, enter:

YTD

and press the Return key. That is our second menu item. Now at cell K16 enter the description:

Sorts by city's YTD totals

and press the Return key. Notice that the description from the previous menu item was chopped off when the second one was entered. The spreadsheet allows cells to 'borrow' space from another cell unless that cell has data in it. By increasing the column width, you can display the entire contents of the cell. For the example, it is not necessary. Now we'll complete this menu item by entering the function it is to perform. At cell K17 please enter the following:

{branch \ b}

and press the Return key. Macro "\ b" will be executed whenever this menu item is selected. Now we'll enter the third and fourth. At cell L15, please enter:

Currency

and press the Return key. At cell L16, enter the following menu description:

Formats monthly sales figures in currency format

and press the Return key. At cell L17, enter the menu item function:

{branch \ c}

and press the Return key. One more menu item to go. At cell M15, enter the menu item:

Reset

and press the Return key. Now enter the following item description at cell M16:

Resets monthly sales in general format

and press the Return key. At cell M17, enter the menu item function:

{branch \ d}

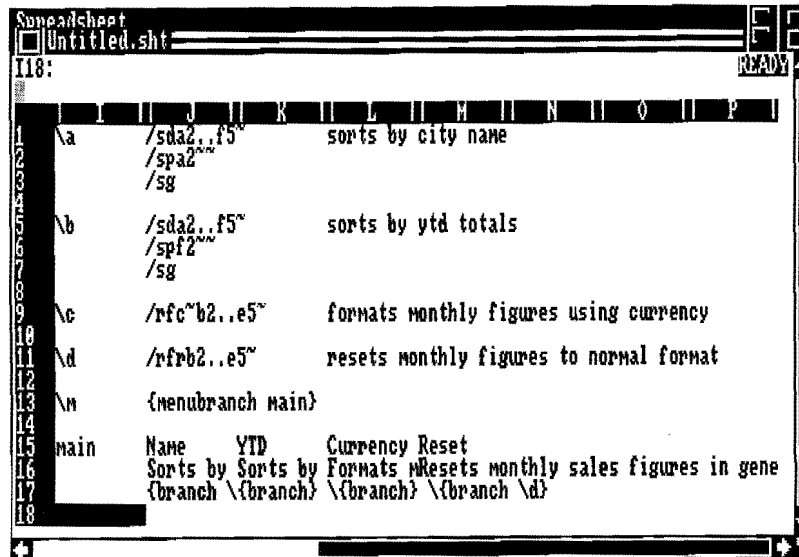
and press the Return key. The last step is to define these menu items under the range name of "MAIN", which "{menubrand}" will execute when the "\ m" macro is executed.

At cell I15, enter the label:

main

and press the Return key. With the cell pointer still at that address, select *Range Name Right* by pressing "/RNR" from the keyboard. When the enter range prompt appears, press the Return key.

We've just completed a fully working macro selection for your worksheet and it should appear something like this:



Not only can you select the individual macros by pressing a Left-Amiga x key, you can group macros under your own customized menus.

To show how your new macro menu works, press a Alt- up-arrow key to move the cell pointer to cell A1.

Now press the Alt-M key to execute the "\ m" macro which executes the customized menu you created. Notice how the "Name" menu item is highlighted. Select it now by pressing "N" from the keyboard or pressing the Return key.

Your SALES.SHT should have been sorted by city name. Press the right arrow key twice or the TAB key twice to move the highlight bar

down the menu. Your menu should look similar to the following:

	A	B	C	D	E	F	G	H
1		JAN	FEB	MAR	APR	YTD		
2	AUSTIN	\$99.00	\$44.00	\$99.00	\$44.00	\$286.00		
3	DENVER	\$77.00	\$22.00	\$22.00	\$22.00	\$143.00		
4	FRESNO	\$88.00	\$33.00	\$33.00	\$33.00	\$187.00		
5	TOLEDO	\$10.00	\$55.00	\$55.00	\$88.00	\$208.00		
6								
7	TOTAL	\$274.00	\$154.00	\$289.00	\$187.00	\$824.00		
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								

The menus you create will work identically to the ones built into the spreadsheet. For that reason, if you create two menu item names that begin with the same letter, use reference numbers. This allows you to press the corresponding initials from the keyboard without having to highlight the individual menu items.

With this rule in mind, there is no reason you cannot create menus that run several levels deep by substituting the "{branch \ x}" macro command with one similar to the following:

{menubranh second}

Of course, if you're going to execute a secondary menu, please create it. Anytime a macro tries to execute another macro (this is called a sub-routine and will be explained later) and that macro does not exist, a "Range name undefined !!" requester will appear. The same requester may also appear if a macro command or macro key is entered improperly.

By changing the "\ m" macro to a "\ 0" (zero), the spreadsheet will execute your custom macro menu everytime it is loaded from your disk. To change a macro name, select *Range Name Delete* and press the Return key, change the macro identifier, then select *Range Name Right* to re-define the range using the new range name.

Now that you have an idea of how powerful and useful macros are, the next two sections will cover the macros available with the spreadsheet and their functions.

MACRO KEYS

Macro keys are substitute commands for the spreadsheet arrow keys, function keys and editing commands, like backspace, delete, etc..

The cell pointer macro keys are defined as follows:

Macro Key	Description
{down}	Moves the cell pointer down one row.
{up}	Moves the cell pointer up one row.
{left}	Moves the cell pointer one column to the left.
{right}	Moves the cell pointer one column to the right.
{home}	Moves the cell pointer to the first cell in the worksheet that allows data to be entered. Usually A1, but the use of titles could change that.
{end}	Moves the cell pointer to the last cell in the worksheet that has been used for data.
{pgup}	Moves cell pointer one full window up.
{pgdn}	Moves cell pointer one full window down.
{bigleft}	Moves cell pointer one full window to the left.
{bigright}	Moves cell pointer one full window to the right.

The function key macro commands are:

Macro Key	Description
{help}	Displays the help requester.
{edit}	Edits a cell's contents. Identical to the F2 function key.
{name}	Displays the Range Name requester when the spreadsheet is prompting you for a range name. Identical to the F3 function key.
{abs}	Toggles a cell range between relative and absolute values. This works only in the POINT mode and is identical to the F4 function key.
{goto}	Moves cell pointer directly to a specific cell address. You can optionally enter the cell address as part of the macro command as follows: {goto}g14~ automatically places the cell pointer at cell G14. The same as the F5 function key.
{window}	Re-sizes the spreadsheet window. The same as the F6 function key.
{print}	Prints the worksheet using the defined Print Menu options. This works the same as the F7 function key.
{store} or {save}	Stores the current worksheet only if the worksheet has been named. Either {store} or {save} will work correctly. Identical to the F8 function key.
{calc}	Recalculates the entire spreadsheet, or a single cell if in the EDIT mode. The same as the F9 function key.
{graph}	Views the currently defined graphs. Same as the F10 function key.
{step}	This last macro command is used to help you find problems with your macros and is the same as the Shift-F1 key.

When a macro encounters this command a status indicator is toggled on and will appear at the top of the spreadsheet window with the word "STEP". As long as the STEP indicator is displayed, all macros will execute one step at a time, waiting for you to press the Return key before continuing with the next macro entry.

To turn the {step} mode off, place another {step} command in the macro. This is good practice, otherwise everytime you run a macro containing a single {step} command, the first time it executes the macro it will be in the STEP mode and the next time it will toggle the STEP mode off.

While in the STEP mode, macro entries are processed in two different ways. Commands not surrounded by braces will execute one character at a time, while macro commands and macro keys that have to be surrounded by braces will execute the commands contained within the braces before requiring the operator to press the Return key. For example:

```
\ a    {step}/sda2..f5  
        /spf2~~  
        /sg{step}
```

would cause the example macro created in the tutorial section to execute each macro entry one at a time. When run, you will need to press the Return key as the first macro entry is the forward slash which is used to bring up the spreadsheet menus. Then the next step will select the *Sort* menu, the one after that will select *Data-Range* and so on. Please try this with the test macros created, it will help to make you familiar with correcting incorrect macro entries. Remember, to halt execution of a macro at anytime, press a Ctrl-C.

The last macro keys are commands that are normally used in the EDIT mode. They are:

Macro Key	Description
{escape} or {esc}	The Esc key.
{backspace} or {bs}	The Backspace key.
{delete} or {del}	The Del key.
{~}	Have the tilde appear as ~.
{ } and { }	Have the braces appear as { and }.

All the above Macro Key commands will function the same as if you had entered them from the keyboard. You may wish to take some time to familiarize yourself with these commands by creating a test macro and executing each one of these commands individually or in combination with others to see how they perform.

MACRO COMMANDS

This last section deals primarily with special macro commands that perform specific functions when using macros. It is these commands that give macros the ability to interact with the operator and the spreadsheet. These commands are:

{?}

Halts macro execution until the Return key is pressed. Allows you to enter data into the worksheet while the macro is waiting for the Return key. Here is an example:

\ g {graph}{?}{calc}

This example would view the graphs, allow you to make changes to the worksheet until the Return key is pressed and then the macro would continue, recalculating the worksheet. Please note that this macro command **IS NOT** a substitute for the tilde character and if a macro requires a tilde character, you will still have to enter it.

{beep Hz}

Sounds a tone from the computer. This commands accepts a number or formula where the result is in Hz for the frequency of the tone. The default is 500 and would appear as: {beep 500} or {beep 2500}.

{branch location}

This macro continues executing the macro at another location, generally a range name, but can be a specific cell address. Any macro commands past the {branch} will be ignored as all control is passed to the new location. For example:

```
\ a      {branch main}
```

```
main     {branch \ c}
```

{getlabel prompt-string, location}

This macro prompts the operator for a label and places it at the range or cell address specified by "location". The entered label will be left justified in the cell address. For example:

```
getname   {getlabel "Please enter your FIRST name: ", a15}
```

When this macro is executed, the enter name prompt will appear at the top of the spreadsheet window. When the information is entered by the operator it is placed in cell A15. Please surround the prompt-string in quotes whenever the string contains a comma (,) or a semi-colon (;).

{getnumber prompt-string, location}

This macro performs exactly as {getlabel}, except the input must be a number. Since {getnumber} does not check to make sure the input is a number, any labels entered are automatically converted to a "0" value and placed in the cell address specified by "location". For example:

age {getnumber "How old are you? ", a20}

This macro would execute whenever the macro routine named "age" is executed. The operator would be prompted for their age and the result would be placed at cell address A20.

{if condition}

This macro command is one of the more powerful that you will come to rely on. With it, you can specify conditions under which a macro can continue. For example:

**totals {if @sum(a1..a16) < 85}{branch re-enter}
 {branch continue}**

The above macro would check the totals of cells a1..a16 and check to see if the result was less than 85. If the result is less than 85, the macro would branch to the routine called "re-enter".

If the result is 85 or greater, the macro will skip past the {branch re-enter} command (and any others that existed on that same line) and continue execution of the macro by doing the {branch continue} command.

The important thing to remember is if the conditions of the {if} macro are met, macro execution will continue with the macro commands that appear to the right of the {if} command. Otherwise, execution continues with any macros below that cell until a blank cell is encountered.

Two sets of numbers can be tested with the {if} macro. For example:

**match {if @sum(a1..a16) < 85}{if a17=96}{branch continue}
 {branch re-enter}**

This example is similar to the one above except it not only checks to see if the result of the @sum function is less than 85, it also checks to see if the number in cell a17 is 96.

{let location, value/string}

This macro allows you automatically place a value or a string at a location. For example, enter:

	H		I	
8	delay		{let j8,0}	
9			{let j8,j8+1}{if j8=50}{return}	
10			{branch i9}	

This is a perfect example for placing a delay in a macro. The {let} command initially sets cell J8 to zero then continually adds 1 to cell J8 until it equals 50. If it equals 50, the macro returns to where the {branch delay} command was executed. The {return} command is covered fully a little later in this chapter.

The {let} macro allows an optional parameter after the value or string that determines whether the contents of the cell should be entered as a value or a label. The default parameter is a ":value", but if a ":string" is substituted, the numbers that would have normally been entered in the cells would have been entered as labels. For example:

	H		I	
8	test		{let h10,2*235:string}	
9				
10	2*235			

The above example starts with a number, but if you want it displayed as a formula instead of doing the calculations, add the ":string" parameter.

{menubranh location}

This macro was discussed briefly in the tutorial section at the beginning of this chapter.

The {menubranh} macro is used whenever you wish to create a custom menu for your macros. The "location" can be a cell address or a range name. If the location is a range name, the macro will start

executing at the first cell in the defined range. The first item at the menubranh location is the menu item's name. The cell below it contains the description of the menu item. In the cell below the description is the macro command to be executed. By using more than one {menubranh} command, you can create menus several levels deep. For example:

```
main-menu      Sort
                Sorting options
                {menubranh sort-menu}
```

would have as part of your customized main-menu an option to take you to another menu using the named range "sort-menu". If you did not wish to have a secondary {menubranh} done, substitute the macro commands you wished executed, or enter the appropriate {branch} command.

{quit}

This macro command halts macro execution at that point and returns control of the system to the operator. It may be useful in some instances when using {if} macro commands or when you want to quit from a custom macro menu. This command requires no parameters and is used as follows:

menu	Name	YTD	Currency	Reset	Quit
	Desc.	Desc.	Desc.	Desc.	Exit menu
	{command}	{command}	{command}	{command}	{quit}

{return}

This macro command is used to end a macro sub-routine and return control back to where the sub-routine was executed. A sub-routine is a set of macro commands that any other macro can branch to temporarily and then return to complete the main macro.

Take the "delay" macro given as an example with the {let} macro command. If more than one macro would need a delay, it makes more

sense to use a sub-routine than to duplicate macro commands several times. Take the following example:

	A	H	I
8	/sg{delay}	delay	{let j8,0}
9	{branch \ b}		{let j8,j8+1}{if j8=50}{return}
10			{branch i9}

The macro at cell A8 does a Sort Go and then executes the {delay} sub-routine. When the sub-routine has completed it's function, control is returned to the macro that originally executed it, where it then does a {branch \ b}.

Sub-routine names need to be placed in braces. If a sub-routine is executed that does not exist, a "Range name undefined !!" requester will appear.

{say string}

This macro uses the AmigaDOS narrator device to allow your worksheet to talk to the operator. For example:

error {say Improper response}{return}

would cause the spreadsheet to audibly warn the operator that improper input was entered.

CHAPTER 15A

TELECOMMUNICATIONS SCRIPT LANGUAGE

This chapter contains information on creating script files. Examples are given when appropriate.

The telecommunication program's Script language is one of its most powerful and useful features. Practically every function of the program can be controlled through the Script language.

The telecommunication program uses these special commands to interact with the remote system as if you were there. Unattended operations allow you to call a system late at night, when rates are low, transfer information and have it waiting for you in the morning.

Script files can be a maximum of 8k. The program allows a Script file to call another, so large Scripts can be separated into two or more files. The program automatically loads the Script file named TelCom.scp, if it exists.

When the program is loaded from a project icon or through CLI with a Terminal file name, the corresponding Script file is loaded. For example, if you select an MSS.trm project icon an MSS.scp file is loaded also, if it exists.

The next section lists all the program's Script commands, along with some examples:

SCRIPT COMMANDS

ABORT

Halts the execution of the Script file and returns you to the terminal mode. This is the same as *Script Stop* and can be used when an error is detected.

ALARM [hz,ms]

Sounds a tone using the optional parameters of the tone in hertz and duration in milliseconds.

You can use an **ALARM** at the beginning of a Script file to let you know when you connect to a remote system. If you use the command without any parameters a default tone is sounded. Place one **ALARM** command after another to create distinctive sounds. For example:

ALARM 750,250

ALARM 500,250

sounds a high tone and then a lower tone.

ASK "prompt"

Prompts you for a single character or number and does a Script command based on your response. If you use the command by itself, **ASK** can be used to temporarily pause a Script. For example:

ASK "Press any key to continue:"

waits until you press a key and executes the next command in the Script file.

The following example prompts you for one of two possible responses:

ASK "M>essage base or F>ile transfer area?"

IF mM JUMP MESSAGES

IF fF JUMP FILES

ABORT

The first line displays the message and waits for your response. The next two lines compare your response.

The second line checks for an upper or lowercase letter *M*. If there's a match, the Script searches for the label named *MESSAGES* and

executes the Script commands following that label.

If the letter *M* isn't entered, the third line checks to see if the letter *F* is entered. If there's a match, the label named *FILES* is located and the Script commands after the label are executed.

In the event neither *M* or *F* is entered, the fourth line aborts the Script file.

The value entered for **ASK** is stored by the program and can be used later in the Script file until another **ASK** command is performed.

BYE

This command ends the phone connection and executes the next Script command.

Use **BYE** in an unattended Script file. Some services may not hangup until after a lengthy timeout, which can cost money if you're connected to a commercial service.

The command **OFFLINE** can be used as a substitute for **BYE**.

CARRIER

Use this command with **IF** and **NOT** to check for the presence or absence of carrier detect. For example:

IF CARRIER ALARM

IF NOT CARRIER JUMP DIAL

The first example checks for carrier detect and executes **ALARM**. This is ideal to alert you when connection is made with a remote system.

The second Script command checks to see if carrier is **NOT** present. If no carrier is detected, the Script file searches for the label named

DIAL and executes the commands following *DIAL*.

The commands \$ or **ONLINE** can be used as a substitute for **CARRIER**.

CLEAR i,p

CLEAR is used to erase the contents of the current window. The parameters for ink and paper color can be used as follows:

CLEAR 1,0

clears the window and resets the window attributes to white foreground (1) and blue background (0).

COLOR f,b

This command allows you to change the program's foreground and background settings. Changes take effect in the window immediately after the command is executed. The color registers are numbered 0 to 7.

You can use this command to highlight messages from the Script file. If *Project Preferences 4 Color* is selected you could enter:

COLOR 3,2

to display orange characters on a black background, if you did not reset the colors.

DO "filename"

This command loads and executes one Script file from another. Use **DO** when a Script file reaches its maximum size of 8k or you want to load a Script based on a particular use. For example:

```
ASK "Enter Script to load: M, F or T"  
IF mM DO "MESSAGES"  
IF fF DO "DF1:FILES"  
IF tT DO "DATA:TelCom/TRANSFER"
```

The first Script command prompts you for a new Script file.

If you enter an upper or lowercase *M*, the Script file named *MESSAGES* is loaded and executed.

If you enter an upper or lowercase *F*, the Script file named *FILES* is loaded from the disk in your external drive and executed.

If you enter an upper or lowercase *T*, the Script file named *TRANSFER* is loaded. This Script file is located in the sub-directory named *TelCom* on the disk with the volume name of *DATA*.

IF "compare string" Script command

This command compares a single character input from an **ASK** and executes a Script command based on your input. The compare string can be a single character or many characters. The compare string is case sensitive, so you should look for upper and lowercase characters. For example:

```
ASK "Do you wish to continue?"  
IF yYcC JUMP CONTINUE  
ABORT
```

When the **ASK** entry matches the **IF** compare string, the Script commands to the right are executed. If no match occurs, the next line in the Script file processed. See **ASK** and **DO** for examples of multiple compare strings.

JUMP label

JUMP is used to branch to a label in the Script file. Do not confuse this with a *GOSUB* in BASIC; the Script does not return to where the

JUMP command was called from. This command is most often used with **IF** or **WHEN** commands. For example:

```
ASK "Do you wish to logoff? y/n"  
SAY "Do you wish to logoff?"  
IF yY JUMP LOGOFF  
JUMP BEGIN  
LABEL LOGOFF  
BYE  
ABORT
```

The **ASK** prompts you for a yes or no response. The **SAY** repeats the prompt audibly. The **IF** command tests the compare string against your input. If you enter an upper or lowercase **Y**, the Script **JUMPS** to the **LABEL** named **LOGOFF**. The commands following the **LABEL** are automatically executed.

You may not **JUMP** to a label in another Script file. Use **DO** to load another Script file.

LABEL name

A **LABEL** is used to mark the beginning of a series of Script commands. Based on the result of an **IF** or **WHEN** statement, you can **JUMP** to a specific label, bypassing many unnecessary Script commands. For example:

```
IF NOT CARRIER JUMP CALL  
SCRIPT COMMAND  
SCRIPT COMMAND  
JUMP CALL  
ATDT123-4567|
```

LABEL names may only contain alphanumeric characters (letter and numbers). For purposes of clarity, it is not a good idea to use Script commands as labels. For example, a **LABEL** named **BYE** may be confused with the Script command **BYE**.

MENU command "parameters"

This is one of the program's most powerful Script commands. With this command you may execute any menu item. The procedure is to enter the menu commands with any parameters surrounded by quotes.

For example:

MENU PROJECT QUIT "O"

MENU BUFFER OPEN "16" "DF1:CAPTURE.DOC"

If your Script file is looking for a Wait string, you may need to rearrange the order in which some **MENU** commands are performed.

When a **MENU** command is used, the program does not display any requesters. All requester information must be entered as a parameter. When two requesters are normally displayed, two parameters must be used.

The second item allows you to quit the program. Normally, the requester **Okay to QUIT project?** appears. Since this is a Script command, the requester is not displayed and the reply "O" for OK is used to satisfy the requester.

The third item opens a capture buffer. The window size of the capture buffer is entered as the first parameter and the capture buffer filename is the second parameter.

When using **MENU** commands, be sure all the information for the menu item is entered. Incomplete **MENU** commands default to the first item in the pop-out menu or the console beeps to inform you an error was detected.

Illegal **MENU** commands appear on the screen with two question marks at the point where the **MENU** command failed.

If you select *Preferences Modem, Setup MKeys* or *Setup Tables*, you

can display the requester, but none of the items in the requester can be changed through the Script file.

MESSAGE "string"

This command is used to display information on your screen only, it is not sent to the remote system. The **MESSAGE** command can be used with **CLEAR** and **COLOR** to clear the window and highlight the text so you know the message is from the Script file and not the remote system. For example:

CLEAR

COLOR 1,0

MESSAGE "Messages read. Going to File transfer area."

COLOR

NOT

NOT negates an **IF** statement. For example:

IF NOT CARRIER JUMP CALL

checks to see if carrier is not detected and **JUMPS** to the label named **CALL**. If carrier is detected, the next line in the Script file is executed.

The characters **!** and **-** are substitutes for **NOT**.

REPLY

The **REPLY** command sends a character string or macrokey to the remote system. **REPLY**'s can be sent at any time, but are normally used after a **WAIT**. For example:

REPLY "This is a test REPLY"

sends the string to the remote system.

The same special characters allowed in *Preferences Modem* and

Setup **MKeys** are permitted in your **REPLY**. For example:

```
REPLY "rn|"  
REPLY "^P"
```

The first line types the letters *RN* and sends a carriage return to read new messages on a BBS-PC! system. The second Script command is used on many bulletin board systems to abort a text display.

Macrokeys can be sent in a **REPLY** by preceding the Function key number with an @ sign. A macrokey **REPLY** is NOT surrounded in quotes. See the following:

```
REPLY @1
```

```
REPLY @S8
```

The first example sends the same character string as if you had pressed the F1 Function key. The second example sends the Shift-F8 Function key. Notice the S before the number to designate a Shifted Function key.

RWIND

This command starts executing the Script again from the beginning of the file. This is faster than **JUMP** and uses less memory in the Script, since a **LABEL** is not needed.

```
SAY "string"
```

This command causes the string to be spoken by the Amiga's speech synthesizer. It is useful for prompts, notice of the progress of a call, and so on, when an **ALARM** does not provide enough information.

```
SBREAK [ms]
```

Using **SBREAK** by itself sends 250 milliseconds of true break and is a substitute for the Left-Amiga C command. To send a longer true

break, enter a value in milliseconds. For example:

SBREAK 1000

sends a true break for 1 second (1000 milliseconds).

SKIP number

This command is used to skip over lines in a Script file. **SKIP** is ideal when you wish to keep your Script file as small and efficient as possible by avoiding the use of **JUMP**. For example:

IF \$ SKIP 3
ATDT123-4567
MESSAGE "Dialing number again"
CLEAR
ALARM

The above example checks for the presence of **CARRIER (\$)**. If carrier is detected the Script file ignores the next 3 lines and sounds a tone.

This command cannot **SKIP** past the end of a file, nor can it be used to **SKIP** up lines in the Script file.

WAIT condition

WAIT pauses a Script. Without a **WAIT**, your Script file may do the next Script command before the current command finishes executing.

WAIT BUFFER

Pauses the Script until the contents of the capture buffer is sent to the remote system. For example:

MENU BUFFER SEND GO
WAIT BUFFER
REPLY "S|

BYE

Without the **WAIT**, the Script file may end the call before the capture buffer has completed.

WAIT CHAR "c"

CHAR pauses the Script until a specific character is displayed. To **WAIT** until a control character is displayed, enter the following:

WAIT CHAR "^E"

WAIT FOR can be substituted for this command.

WAIT DELAY [xx]

DELAY pauses the Script for xx tenths of a second. For example:

WAIT DELAY 20

pauses for 2 seconds. For some Scripts this is the perfect command when you are not sure whether the initial **WAIT STRING** will appear as you expect. Try this:

WAIT DELAY 20

REPLY "|"

waits 2 seconds after carrier detect and responds with a carriage return.

WAIT ECHO

This command pauses until a carriage return is sent from the remote system. This works the same as **WAIT CHAR "^M"** or **WAIT CHAR "|"**.

WAIT MKEY

Waits until the contents of the macrokey is sent before doing the next Script command. For example:

```
REPLY @3  
WAIT MKEY  
REPLY @S9
```

sends the first macrokey, pauses until the macrokey is finished displaying and then executes the next Script command.

WAIT PROMPT [xx]

Pauses the Script until a specified number of characters are received. This includes any character, both displayable and non-displayable control codes.

This command can be used to prevent a capture buffer from overflowing. For example:

```
MENU BUFFER OPEN "5"  
WAIT PROMPT 5120  
MENU BUFFER CLOSE
```

opens the buffer to a window size of 5k, pauses until 5120 (5k) characters are received and then closes the buffer.

WAIT QUIET [xx]

This command waits for xx tenths of a second until nothing is received from the remote system. Be careful of how you use this command. If you are calling a system where there is excessive line noise present, this command will fail and the Script file halted indefinitely.

WAIT QUIET differs from **WAIT DELAY**. When **QUIET** is used, nothing may be received, where **DELAY** pauses for the appropriate amount of time, regardless of data received from the remote system.

WAIT REPLY

REPLY waits until your **REPLY** string is sent before executing the next Script command. For example:

```
REPLY "Firstname|"
WAIT REPLY
REPLY "Lastname|"
```

prevents the second **REPLY** from disrupting the first, otherwise the following string could be sent to the remote system:

```
FirsLastname
```

WAIT STRING "string"

Pauses Script execution until a particular character string is displayed. A **WAIT STRING** can be up to 15 characters long and may include control codes, carriage returns and line feeds. For example:

```
WAIT STRING "LOGIN: ^E"
```

WAIT STRING "t and lastname:"

The first item waits for the characters *LOGIN:* and a *control E* before resuming Script operation.

The second item is 15 characters long and is shortened from the prompt **Enter your first and lastname:.**

When using a **WAIT STRING** with a **REPLY**, keep your **WAIT STRING** as short as possible and look for the last characters of a remote system's prompt. This prevents the **REPLY** from being sent while the remote system is still displaying information. If you need an example, refer to the second item's **WAIT STRING** compared with the remote system's prompt.

WAIT UNTIL [hh:mm]

Pauses the Script until a specific time. The time is entered in hours and minutes using the 24 hour military format. For example:

WAIT UNTIL 6:34

WAIT UNTIL 18:34

The first item waits until 6:34 a.m. and the second item waits until 6:34 p.m..

WHEN "string" Script command

This command is like a **WAIT STRING**, except it is always in effect and does not pause the execution of the Script file.

Because **WHEN** is always comparing the incoming data against the **WHEN** string, it takes up a great deal of processor time. It is a good idea to keep your **WHEN** string as short as possible and use it only as long as you must.

Only one **WHEN** string may be active at a time. Enter a new **WHEN** to disable the old. To disable a **WHEN**, call a new Script file or enter the command by itself.

Here is an example of a **WHEN**:

WHEN "More (Y)/N/NS?" REPLY "|"

Whenever this prompt appears, the program sends a carriage return to the remote system. **WHEN** can look for characters and control codes. Be careful of how you use a **WHEN**. When a **WHEN** string is displayed, Script file execution automatically aborts and the command next to the **WHEN** is performed. After the command is performed, the Script continues with the line below the **WHEN**, not from where the Script file was executing previously.

Most of the time you will use **JUMP** or **DO** as part of the **WHEN** statement.

THE LEARN MODES

The program provides two different Learn Modes: Left-Amiga L and Left-Amiga K. Left-Amiga L creates a **WAIT STRING** and **REPLY** Script file, while Left-Amiga K creates a **WAIT STRING** and any Script command file.

When Left-Amiga L is pressed the last 15 characters displayed are used for the **WAIT STRING**. Edit this string as necessary and press the Return key. The **REPLY** string requester is displayed. Enter your response and press the Return key. Your response is sent to the remote system and is stored in the Script.

When Left-Amiga K is pressed the **WAIT STRING** is displayed. Edit the string and press the Return key. When the next requester appears, enter any legal Script command.

Left-Amiga K is much better for creating sophisticated Script files; use Left-Amiga L for simple wait and replies.

To store a Script created with the Learn mode, select *Script Save*. When the File Requester appears, enter a filename in the Selection input area. **DO NOT use periods as part of the filename**, the program automatically adds the .scp filename extension. Select the Store gadget and the program saves your Script file.

CREATING SCRIPT FILES

Script files can be created with the wordprocessor or using the Learn mode, or with a text editor, such as AmigaDOS's ED. Creating a Script file is not unlike programming. Solutions often lie in thinking through the problem. Every application is unique and *it is not possible for our Technical Support advisors to create a Script file for you*. The sample Script file that follows is a good reference. Here are some quick rules for working with Scripts:

- Lines that start with a semi-colon (;) are not executed and can be used as comments.
- To chain Script commands on the same line, separate each command with a colon (:).
- Script command lines may be a maximum of 80 characters.
- Scripts may up to 8k in size.

Use a **WAIT DELAY 20** to start a Script file when your **WAIT STRING** fails because of line noise or the remote system not always displaying the same information when connection is made.

If your modem always forces carrier detect, start your Script file with a **WAIT STRING** and your modems *CONNECT* string result code. For example:

```
WAIT STRING "CONNECT 1200\r"  
REPLY "|"
```

Waits until your modem returns the result code for a 1200 baud connection and replies with a carriage return.

A SAMPLE SCRIPT FILE

Examine this Script file carefully. It may provide you with ideas for creating your own.

```
;start executing the Script at 3:00 a.m.
WAIT UNTIL 3:00
;load the MSS.trm file
MENU PROJECT OPEN "MSS.trm" "O"
;call entry number 1 repeat until carrier detect
LABEL CALL
MENU PROJECT CALL "1"
IF NOT CARRIER JUMP CALL
;now wait 2 seconds and press Return
WAIT DELAY 20
REPLY "|"
;enters your name and password
WAIT STRING "name:"
REPLY "put your name here|"
WAIT STRING "Password:"
REPLY "put your password here|"
WAIT REPLY
;open a capture buffer and read the new messages
MENU BUFFER OPEN "16" | "MYCAPTURE.DOC" |
WAIT STRING "command:"
REPLY "m;rtn|"
;non-stop message read
WAIT STRING "Quit ?):"
REPLY "ns|"
;messages are read - close and clear the buffer
WAIT STRING "command:"
MENU BUFFER CLOSE : MENU BUFFER CLEAR
;load a file into the capture buffer that you create
;that is a message for the SYSOP
MENU BUFFER LOAD "MESSAGE.DOC" "L"
;leave a message to the SYSOP
REPLY "L|SYSOP|HELLO|"
WAIT REPLY
```

```
;send the message in the capture buffer to the display
MENU BUFFER SEND GO
WAIT BUFFER
;store the message in the SYSOP comments area
REPLY "||S|C|"
WAIT REPLY
;go to file transfer area
WAIT STRING "command:"
REPLY "Q;F|"
WAIT STRING "command:"
;change your transfer protocol and start downloading
MENU FILE PROTOCOL XMODEM-CRC
REPLY "D/C MSS12B.ARC|"
WAIT REPLY
;receive the file at this end
MENU FILE RECEIVE "MSS12B.ARC" |
;time to say goodbye
WAIT STRING "command:"
REPLY "g|"
WAIT REPLY
BYE
;display message to let you know everything went well
CLEAR
COLOR 3,1
MESSAGE "Everything worked successfully|"
MESSAGE "Messages are on disk and so is your file|"
COLOR
```

This sample Script file can be used on our MSS Headquarters BBS, and with minor modifications, should work with most remote systems.

Thoroughly test your Script files before running them unattended. It will take time to make sure the Script is capable of handling situations which can cause them to fail.

CHAPTER 15B

TELECOMMUNICATIONS SADIE PROTOCOL

The Sadie file transfer protocol allows you to upload a file, download a file and chat with someone; all three activities *at the same time*.

Sadie is currently supported by Micro-Systems Software's **The Works! Platinum Edition, OnLine! Platinum Edition** and **BBS-PC! (v4.30)**, our electronic bulletin board software.

SENDING A FILE

Verify that Sadie is the selected protocol on the *File Protocol* menu and choose *File Send*. When the file requester appears, choose the file or files you wish to send to the remote system. Sadie is a batch transfer protocol which lets you send several files -- one after the other -- without having to keep selecting the *File Send* menu item.

To send several files enter an AmigaDOS wildmask in the Selection input area of the file requester. For example, the wildmask *#?.arc* would cause the telecommunications module to transfer all the files in the currently logged volume/path that end with the filename extension *.arc*.

After you choose the file(s) to transfer, click the Send gadget. Now the telecommunications module pauses until the remote system requests the files.

RECEIVING A FILE

Once you have entered the files to send, or the remote user has done that for you, then choose the *File Receive* option. Use the *File Path* option to save the files on another disk. **Remember, the remote system must first select *File Send* before you can select *File Receive*.**

Four windows appear -- two file transfer windows and two chat windows.

SIMULTANEOUS FILE TRANSFERS

To initiate a two-way file transfer, the users of both systems need to do a *File Send* at the same time. When you follow this procedure Sadie automatically selects *File Receive* on both systems.

If everything is correct, four windows appear -- two file transfer windows and two chat windows.

THE CHAT WINDOWS

When the file transfer begins two chat windows open. The top window, *Chat Receive*, displays the text typed from the remote user. This window ghosts to indicate you may not enter anything in this window.

Type your text in the bottom window. Everytime you press Return the contents of the *Chat Send* window is sent to the remote user. If you make a mistake while typing, press the Backspace key. To clear the entire *Chat Send* window, press Ctrl-X or Esc.

While the files transfer you may chat with the remote user. This continues until all the files have been sent. When the both transfers finish, the file transfer and chat windows close.

To abort a file transfer click the close gadget on the appropriate file transfer window. In this manner you may abort a *File Send* while continuing to receive. However, until you finish receiving the files from the other system you may not do another *File Send*.

To summarize, when you need to send a file, select *File Send*, choose the file and click the Send gadget. To receive a file, select *File Receive*.

CHAPTER 16

SIDEWAYS PRINTING UTILITY

NOTE: The term *spreadsheet* refers to a type of program and *worksheet* refers to actual data (i.e. you use a spreadsheet program to make worksheets). This chapter uses the terms as if they were synonymous.

OVERVIEW

The Sideways Printing Utility is capable of printing ASCII text and IFF graphic files to your printer vertically, instead of horizontally. One other way to describe this is horizontal format resembles a landscape painting; vertical format resembles a portrait painting. It works perfectly with **THE WORKS! PLATINUM EDITION** electronic spreadsheet and with any spreadsheet program which prints data to an ASCII text file.

The Sideways Printing Utility supports adjustable margins and paper size. **Boldface**, underline and *italics* character highlighting can be used to enhance the appearance of your printout.

This chapter will cover the operation of the printing utility and provide you with practical examples so can quickly become familiar with all it's functions.

SETTING PRINTER PREFERENCES

The Sideways Printing Utility works with your AmigaDOS Printer Preferences to send text or IFF files to your printer. For this reason, it is very important that you have AmigaDOS Preferences set properly.

These settings are listed below to provide the necessary information, should you wish to make additional changes.

The following information can be displayed by loading AmigaDOS

Preferences, selecting the "Change Printer" gadget, then the "Graphic Select" gadget:

<u>Graphic Select</u>	<u>Setting</u>
------------------------------	-----------------------

Threshold	2
------------------	----------

This setting is useful when printing color graphics on a black and white printer. The value determines which colors are printed as black and which as white. The higher the value, the more colors will be printed as black. This value should only be changed if your "Shade" option is set for "Black and White".

Image	Positive
--------------	-----------------

This selection determines the way characters are printed. When printing IFF pictures, you may wish to select a Negative Image, inverting the characters printed, which may save printer ribbon.

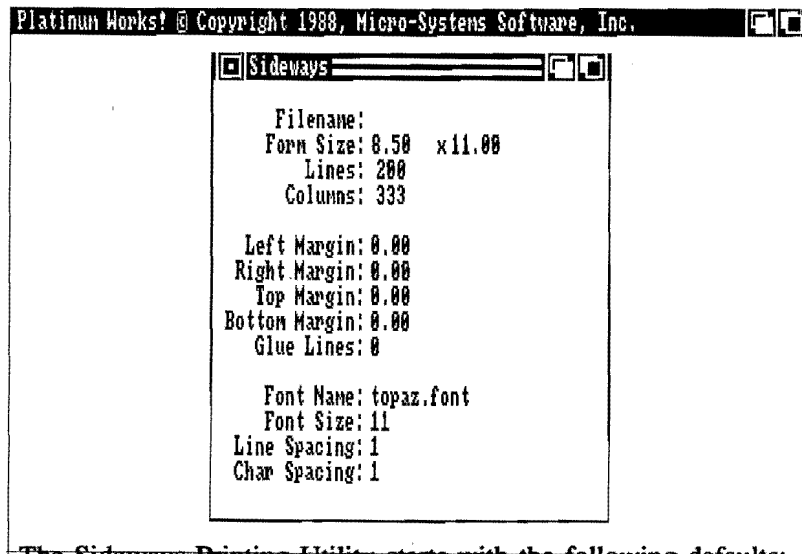
Shade	Gray Scale
--------------	-------------------

This option prints colors in different shades of gray. If your printer supports color printing, you may select "Color". If you do not care for shades of gray, select "Black and White" in combination with "Threshold" to adjust the way the colors are represented as either black or white.

Please select the correct AmigaDOS Preferences printer driver for your printer and save your changes. If your printer has graphics capability but is not listed in Preferences, try choosing the Epson or Generic printer driver. Please understand that if your printer is not 100% compatible with the printer driver you have chosen, inconsistent output may result.

THE UTILITY'S WINDOW

If you haven't done so already, please load Sideways Printing Utility. The utility can be loaded by selecting it from **PLATINUM WORKS!** *Utilities* menu. The following window will appear on the screen:



The Sideways Printing Utility starts with the following defaults:

1>	Form Size:	8.50 x 11.00
2>	Left Margin:	0.00
3>	Right Margin:	0.00
4>	Top Margin:	0.00
5>	Bottom Margin:	0.00
6>	Glue Lines:	0
7>	Font Name:	topaz.font
8>	Font Size:	11
9>	Line Spacing:	1
10>	Char Spacing:	1

Items 1 - 5 are values entered in inches. For each item in the window, there is an input area to the right where the user will enter the desired settings for the print out (**Form Size** contains two input areas, one for the vertical sheet (paper) size and the other for horizontal sheet (paper) size). There are three exceptions:

Filename: The file which is selected from within the *Project Open File* Requester.

Lines and Columns: Both of these items are calculated based on the font size selected and the values entered for all margins, character and line spacing.

THE PROJECT MENU

The items which appear under this menu control general operations of the Sideways Printing Utility.

Project New (A-N)

Returns the Sideways Printing Utility program to its default settings.

Project Open (A-O)

Displays a File Requester from which you can load any text or IFF file into the program to be printed. Toggle the *Pattern:* gadget (in the upper right corner of the requester) to select among the type of files Sideways Printing Utility prints.

These are the available patterns:

.doc	ASCII text files
.txt	ASCII text files
ALL	ASCII text files
.pic	IFF graphics files

Project Close

Select this when you have finished with the utility. The same function can be performed by selecting the close window gadget in the upper left-hand corner of the utility window; it will appear as a box with a small square in the center.

Project Save Defaults (A-S)

Displays a File Requester from which the default settings can be saved in a file with the extension, *.def*. See Chapter 4 for details on File Requesters.

Project Info

Displays printer information about the selected preferences printer driver.

Project Works (A-W)

This menu item activates the **Platinum Works!** title bar. It is used to start another application or utility program.

Project Quit (A-Q)

Select this when you have finished with the utility. The same function can be performed by selecting the close window gadget in the upper left-hand corner of the utility window; it will appear as a box with a small square in the center. No matter which way you exit the program, a requester will appear asking you to confirm your choice.

Select **Project Open**. Refer to the section **SELECTING MENU ITEMS**, if you are having difficulties.

A File Requester will appear and begin displaying filenames. We have provided three sample files that can be printed with the utility: TEST.DOC, SALES.TXT and GRAPH.PIC.

Select the file named "TEST.DOC" which is located on your *Samples* diskette. The next section deals with the settings used by the Sideways Printing Utility to produce the printed output you desire.

THE PRINT MENU

The Print menu contains all the commands needed by the Sideways Printing Utility to affect the way your printer output will appear.

All margins, lines and columns are based on how the file will appear when printed sideways. Only the **Form Size** values refer to how the

sheet of paper appears normally.

With the text file loaded in the utility, the Print menu and the settings which affect the way your printout will appear is covered next.

Print Go (A-T)

Initiates the actual print procedure. Because the utility uses Preferences printer drivers, graphics printing will take more time than normal text printing.

If there is a problem detected in your margin or form size settings, an error message will display and the printout aborted. For a complete list and explanation of each error message, see the section titled **ERROR MESSAGES**, at the end of this chapter.

Print Form

This option is used to set the sheet or paper size the utility will be using.

Print Form Horizontal (A-H)

Selects the horizontal sheet or paper size width. When printed with the utility, this is translated to the number of lines per sheet of paper. The default value is 8 1/2 inches, entered as 8.50. The maximum value is 20.00.

Print Form Vertical (A-V)

Sets the vertical sheet or paper size width. When printed with the utility, this is translated to the number of rows per printed sheet of paper. The default value is 11 inches, entered as 11.00. The maximum value is 20.00.

Print Margins

This option allows the user to define the margins the utility will use when printing the file sideways.

Print Margins Left (A-F)

This is the space appearing on the left side of the first sheet of paper. The default is 0.00. Values are entered in inches, expressed in decimal format. For instance, 1/2 inch would be entered as 0.50. If

Print Margins Right is greater than 0.00, then the left margin will appear on every sheet of paper. Otherwise, the left margin appears only once, at the beginning of the printout.

Print Margins Right (A-R)

This option sets the right margin, which is the space placed on the right side of every sheet of paper. The default is 0.00, for no right margin. Values are entered in inches, expressed in decimal format. For instance, 3/4 inch would be entered as 0.75. When the right margin is set to 0.00, text will print on the perforation of your fan-fold paper. Normally, this is what most users will desire.

However, if you wish the utility to skip over the perforations, enter a value for the right margin. Please remember, when the value of the right margin is greater than 0.00, the left margin's value will apply to every sheet of paper, not just the first sheet.

Print Margins Top (A-P)

This is the space appearing on the top of the page. The default is 0.00. Values are entered in inches, expressed in decimal format. For instance, 1 1/2 inches would be entered as 1.50. If **Print Margins Bottom** is greater than 0.00, then the top margin will appear on every page. Otherwise, the top margin will appear only for the first page (a series of sheets) of the printout.

Print Margins Bottom (A-B)

This option determines the space which will appear at the bottom of each page. The default is 0.00. Values are entered in inches, expressed in decimal format. For instance, 1/4 inch would be entered as 0.25. When the value of the bottom margin is greater than 0.00, the top margin's value will apply to every page, not just the first page.

Notice the examples for the values have been entered in quarters of an inch. Odd values can be used, like 3/8 of an inch, but the utility cannot perform measurements that precise, since only two digits after the decimal point are permitted.

If you desire a margin of 3/8 of an inch, the decimal value would be

entered as ".375". After pressing the Return key, the utility would automatically round off the decimal value to ".38".

To calculate the decimal value of a fraction of an inch, enter the fraction into the spreadsheet program as a formula. Some examples:

Enter the formula "1/4". The decimal value of 1/4 of an inch is "0.25" or 1 divided by 4.

Enter the formula "3/8". The result is ".375" or 3 divided by 8, which the utility will round off to the value, ".38".

Print Glue-Lines (A-G)

This powerful feature is very useful when printing very wide worksheets. Most electronic spreadsheets will print a worksheet to the printer or a disk file. Spreadsheets divide a worksheet into two or more pages if:

- the number of rows in the worksheet cannot be printed on a single page.
- the number of columns in the worksheet exceed the right margin value.

The following page(s) will contain the remainder of the worksheet.

If the worksheet was not divided into two or more horizontal pages when printed to the disk file, leave **Print Glue-Lines** at its default value of "0". Horizontal pages occur when more than one page is needed to print the total number of columns in the worksheet. When horizontal pages exist, enter the **Page-Length** value (which is normally "66") into **Print Glue-Lines**, as long as all the rows of the worksheet can be printed on a single page.

To calculate **Print Glue-Lines** when the worksheet is divided into two or more horizontal pages and all the rows in the worksheet **CANNOT**

be printed on a single page, use the formula below:

$$\text{Print Glue-Lines} = (\text{page-length} * \text{vertical pages})$$

where (vertical pages) is the number of pages the disk file used to print all the rows in the worksheet before continuing to the next horizontal page to print the next series of rows and columns.

See the examples below for calculating **Print Glue-Lines**:

Rows	Vertical Pages	Print Glue-Lines
10	1	66
80	2	132
300	5	330

Horizontal pages existed for each example and all were printed using a **Page-Length** of "66". When using the spreadsheet, or any other program to print a worksheet to a disk file, it is recommended you use a value of "0" for the top, bottom and left margins. Duplicate margin settings can interfere with the utility's **Margin Left, Top and Bottom** values, resulting in large gaps on the printed sheet or page.

If you are printing to a disk file and used top, bottom and left margins, leave the utility's values for those same settings at 0.00. This will avoid the problem where a programs margin settings interfere with the utility's values.

You should use the spreadsheet's default right margin of 76, making it easier to view the contents of the disk file and determine whether **Print Glue-Lines** will be needed, than if the right margin was set at 512. If you enter an incorrect value into **Print Glue-Lines**, such as "22" when the page-length in the disk file is "66", the utility will ignore the entry or place lines together when it should not. See the section **PRINTING A WORKSHEET FILE**, found later in this chapter, to print an example worksheet using **Print Glue-Lines**.

Print Font

The Sideways Printing Utility prints your text files using whichever font you wish. The default font and font size is Topaz 11. Font sizes are categorized as Small, Medium and Large. The font name and font size selected determine the way your characters are displayed. The font size also determines the maximum number of lines and columns the utility can print on each sheet of paper.

Print Font Small (A-1)

This font will appear as 8 within the utility. Each character is comprised of 8 dots wide by 8 dots high.

Print Font Medium (A-2)

This font will appear as 9 within the utility. Each character is comprised of 9 dots wide by 9 dots high.

Print Font Large (A-3)

This font is the default and will appear as 11 within the utility. Each character is comprised of 8 dots wide by 11 dots high.

When using a font size different from the three listed above, it will have to be entered directly into the utility's window. The pull-down menus only support font sizes 8, 9 and 11.

Print Font Name (A-M)

The font name the utility will use. The default is topaz.font. It is recommended you only use non-proportional fonts with the utility.

When selecting a font size or font name, the utility will check your sys:fonts directory for the existence of the font. If the font is not found, the **Lines** and **Columns** value at the top of the window will display "0". Trying to **Print Go** under those conditions will display a "Font not available!" message. This automatically defaults to the Topaz 11 font when loading. If Topaz 11 does not exist, it will use the Topaz 8 font, which is a part of your Amiga.

Print Spacing

The utility permits variable line and character spacing to tailor the way your columns and lines of text will appear when printed out.

Print Spacing Line (A-L)

This is the amount of space, measured in dots, placed between each line. The following are the acceptable values for each font size:

Font Size	Value
8	0-8
9	0-9
11	0-11

Print Spacing Character (A-C)

The amount of space, measured in dots, placed between each character. The following are the acceptable values for each font size:

Font Size	Value
8	0-8
9	0-9
11	0-8

PRINTING A SAMPLE FILE

Before printing anything, first verify the correct printer driver for your printer has been selected. Select **Project Info** which will display a requester with the Preferences driver name. If the correct driver for your printer does not appear, please load Preferences and make the necessary change before continuing.

Once the printer driver has been chosen, select **Print Go**. If you are having difficulties, see the section titled **SELECTING MENU ITEMS**. The Sideways Printing Utility's window will ghost and after a few moments, the printer will print the following:

**This is a sample text file printed with Sideways Printing Utility
(c) Copyright 1987, Micro-Systems Software, Inc.**

When printing has completed, window will unghost.

Feel free to experiment with **Form Size**, **Print Margins**, **Font**, **Spacing** and **Line** settings to see how they affect your printouts.

For a quick example of how **Print Glue-Lines** works, select the item, enter a value of "1" into the input area and press the Return key. Now select **Print Go**. Notice the lines have been printed next to each other. This same principle applies when printing worksheets which have been printed as disk files.

CANCELING A PRINTOUT

To abort a printout, press the Esc key. The Sideways Printing Utility's window will unghost and control will be returned to user.

PRINTING A WORKSHEET FILE

Select **Project Open**. When the file requester has displayed the files on the *Samples* disk, Get the file named "SALES.TXT".

This file was created with the spreadsheet. No top, bottom or left margins were used when the file was printed to disk. This allows you to use the utility's **Print Margins** settings to determine how the worksheet will appear on the paper.

Select **Print Margins Left** and **Print Margins Top** and enter a value of "0.50" in each. Don't forget to press the Return key after each entry so the next item can be selected properly.

The sample worksheet disk file extends to three horizontal pages, with no vertical pages, so enter the value "66" into **Print Glue-Lines**. For most of you, this will be your main use for the utility.

If the Topaz 11 font is selected, the utility will report the number of lines and columns which will be printed on the first sheet of paper. Using the settings you've entered, the values of 75 **Lines** and 84 **Columns** will appear.

When **Print Margins Right** and **Print Margins Bottom** are "0.00", the **Lines** and **Columns** values apply only to the first sheet of paper or first page. Succeeding sheets or pages may contain more printed lines or columns since the **Left** and **Top** values appear only once when **Right** and **Bottom** are "0.00". See the section titled **THE PRINT MENU** for a full explanation of when these margins are printed.

This information has been provided should it be necessary to know exactly how many lines and columns are printed for each sheet of paper. If it is important to have the same number of lines and columns printed for each sheet, enter as small a value as possible for **Print Margins Right** and **Print Margins Bottom** or leave **Print Margins Left** and **Print Margins Top** at their defaults of "0.00".

Select **Print Go**. Notice the use of **boldface**, underlining, *italics* and combinations of all three. The printer may pause occasionally as the utility prepares to send another sheet of paper to your printer.

When the number of rows in your worksheet disk file exceeds the number which the utility can print on a single sheet of paper, the utility will start another page and print the remainder on more sheets or pages of paper. Remember, the utility considers a page to be the number of sheets of paper necessary to print a worksheet sideways until the worksheet's width is reached.

When **Print Glue-Lines** are used, the worksheet width may extend to 5, 10 or even a greater number of sheets of paper. That is one page. The next page contains the number of rows in the worksheet which could not be printed on the first page. This process will continue until the entire disk file has been printed.

PRINTING AN IFF GRAPHICS FILE

The Sideways Printing Utility not only prints IFF graphics pictures sideways, but also prints them in various sizes.

By increasing or decreasing the **Form Size**, the physical size of the printout is automatically adjusted to fit within the form. This results in a larger or smaller printout of the IFF file. **Form Sizes** ranging from **0.10 x 0.20** to **20.00 x 20.00** are allowed, depending on the printer driver. The utility must have at least 1 printable column and line or an error message will be displayed and the printout aborted.

When printing IFF graphics, the utility ignores all margins, line and character spacing. The only values used are **Print Form Horizontal** and **Print Form Vertical**.

Please select **Project Open**. The file requester will appear and start displaying filenames. Toggle the *Pattern:* gadget to *.pic* and locate the filename, "GRAPH.PIC" and OPEN it. Once the file is loaded, select **Print Form Horizontal** and enter a value of "4.00". Then select **Print Form Vertical** and enter the same value.

Select **Print Go** to have the IFF file print. Now change the **Form Horizontal** and **Vertical** settings to larger or smaller values and print the file again.

Refer to the beginning of the chapter for the AmigaDOS Preferences settings which will affect the printing of IFF files.

SPECIAL COMMANDS FOR CHARACTER HIGHLIGHTING

The Sideways Printing Utility's text printing recognizes the following character strings for special character printing. Precede each character string with an Esc (decimal 27) code.

Command	Function
[1m	Boldface on
[22m	Boldface off
[3m	Italics on
[23m	Italics off
[4m	Underline on
[24m	Underline off

These are the standard Preferences escape sequences.

QUITTING

To quit the utility, select **Project Quit**. You may also quit by moving the mouse pointer to the upper left-hand corner of the window, where the close gadget is located, and pressing the left mouse button.

Whichever way you choose to exit the utility, a requester will appear with the message, "Okay to QUIT project?" Select the "Ok" gadget and the Sideways Printing Utility will quit.

ERROR MESSAGES

The following is a list of all error messages and solutions:

Error getting file: The file selected may be damaged or may be neither an ASCII text file nor an IFF graphic file.

Printer not available: Another program is using the printer.

Incompatible driver: The printer driver selected does not contain information needed by the utility. This is not a fatal error but may cause slightly inconsistent output in some instances.

Incompatible printer: Either a non-graphics printer driver has been selected for a graphics printer, or a graphics printer driver was selected for a non-graphics printer.

Printer failure: Probably a hardware problem with the printer.

Out of memory: Decrease file size. Decrease **Form Size Vertical** but don't use right margins. You attempted to print an IFF graphic that was loaded with the *Pattern:* gadget set for a pattern other than *.pic*.

Incorrect form size: Either the Vertical or Horizontal value needs to be adjusted. Each allows a maximum of 20.00 inches.

Incorrect margins: Adjust margins, line or character spacing to allow enough room to print file. The values for **Lines** and **Columns** must be equal to 1 or greater. Values of 0 or less will cause an error.

Font not available: the utility was unable to locate the font requested. The default is Topaz 11 and if that font cannot be found, it will automatically default to Topaz 8, which is a part of your Amiga.

CHAPTER 17

SPELLMATE

The Spellmate utility allows you to edit the user dictionary. You may remove, add or change only the words in the user dictionary -- changes may not be made to the main dictionary.

When selected with the *Utility Spellmate* command, a requester displays the list of words in the user dictionary. Use the proportional scroll bar to browse the user dictionary. To select a word, click the mouse on the word.

Spellmate offers the following options:

Add

Select this to enter a word directly into the user dictionary. A requester prompts you for the word. Enter the word and click OK to place it in the user dictionary. To abort the function, click Cancel.

Edit

Displays the highlighted word in a separate requester. Enter the change and click the OK gadget. You may also click Cancel, which removes the requester without making any changes.

Delete

Click this to delete the highlighted word from the user dictionary. A second requester lets you confirm your choice.

Quit

Click this to exit Spellmate. If you made changes to the user dictionary this option displays a requester with the message, *Save changes to user dictionary?* Click Yes to save the changes, No to ignore them. Cancel removes the requester and returns you to Spellmate. This is the same as clicking the close gadget.

NOTES

CHAPTER 18

dbMERGE

This powerful utility merges one database with another. Both databases must be identical in their database definitions. That is, the databases must be identical to one another as far as fieldnames, datatypes and fieldname order. If they are not, the merge will fail.

This differs from importing from the clipboard in that ASCII files are not read - the entire database is copied into another.

The procedure for merging a database from **THE WORKS! PLATINUM EDITION** is:

Select *Utility dbMerge*. A requester appears and displays two input areas: one for the database *from which* you will *copy* data (Merge Database) and the database *to which* you will *add* data (Main Database).

Enter the names of the two databases in the requester, preceding the database name with a drive path, if necessary. The database name *MyData:Records.DB* is an example.

To begin the merge, click OK. To abort, click Cancel. When merging, a window displays information about the databases being copied and merged.

NOTES

CHAPTER 19

THE WORKS! PLATINUM EDITION REFERENCE

THE WORKS! PLATINUM EDITION menus start each application and utility. These menus also open or delete a specific project, alter project preferences and quit the program.

THE PROJECT MENU

Project Open (A-O)

This command displays a File Requester. Any file selected from this requester will load the application which created it: .doc files will load the wordprocessor (and the file); .sht files will load the spreadsheet (and the file); .trm files will load the telecommunications application (and the file); .env files will load the database (and the form and index from the environment file.) The *ALL* "pattern" will display only those four extensions, not every file. See Chapter 4, *File Requesters* for details on operation.

Project Delete

This command displays the only File Requester from which files may be deleted. **Caution: Files deleted from disk are unrecoverable!!**

The requester will list files, filtered by the extension gadget to the right of the word *Pattern*: (in the upper right of the requester.) The pattern *ALL* displays all files. The files displayed are in the current directory. See Chapter 4, *File Requesters* for details on operation.

Project Wordprocessor (A-W)

This command starts the wordprocessor module.

Project Spreadsheet (A-S)

This command starts the spreadsheet module.

Project Database (A-D)

This command starts the database module.

Project Telecommunications (A-T)

This command starts the telecommunications module.

Project Preferences (A-P)

This command displays a requester from which common options are controlled. Icon creation can be turned on or off by highlighting the box next to the abbreviated module name; interlace mode can be turned on or off; and screen colors and number can be selected.

Project About (A-A)

This command displays fast and chip memory usage, copyright and authorship information.

Project Quit (A-Q)

This command exits **PLATINUM WORKS!** and return to CLI or Workbench.

THE UTILITIES MENU

Utilities Sideways

This utility allows you to print in the landscape (vertical) format. When selected, it starts the sideways printing utility program.

Utilities Spellmate

This utility allows you to edit the user dictionary. When selected, a requester appears. It shows the list of words contained in the user dictionary (those words that the dictionary was instructed to *Learn*.) The words may be deleted or edited to correct spelling.

Utilities dbMerge

This utility allows you to append one database to another. When selected, a requester appears. It consists of two input areas, *Main Database* and *Merge Database* and two gadgets, *MERGE* and *CANCEL*.

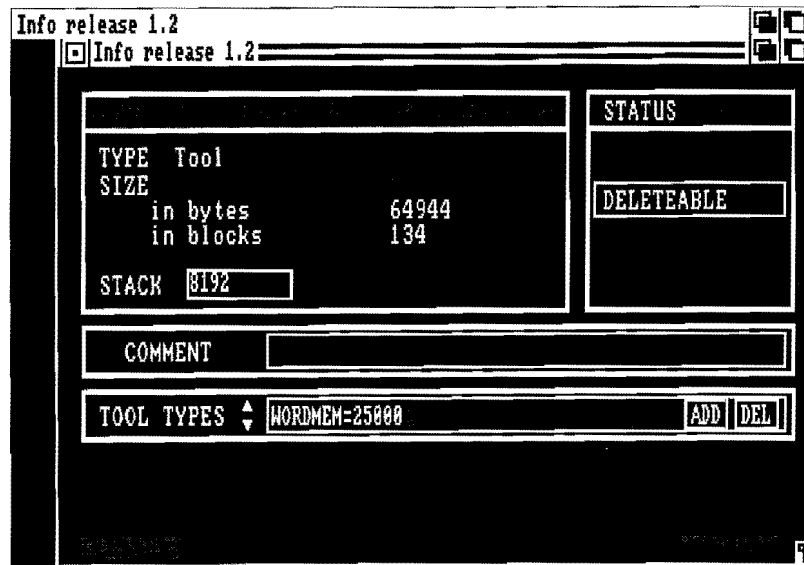
TOOL TYPES IN ICONS

The following tool types may be added to the icon representing **PLATINUM_WORKS!** by single-clicking on the icon, then selecting *Workbench Info*. Tool types consist of a keyword and an argument. The keywords and arguments are:

SHEETSTK=*nn* This *Tool Type* increases the stack size for the spreadsheet. It should be increased from its 16000 byte default if a sheet has within it many forward references. The value *nn* in the argument is passed in bytes. The CLI Switch equivalent is **-K*nn***.

SHEETMEM=*nn* This *Tool Type* increases the window memory size for the spreadsheet. It should be increased from its 16000 byte default if a new sheet will be larger than 16K. The value *nn* in the argument is passed in bytes. The CLI Switch equivalent is **-S*nn***. The smallest size window possible is 8K.

WORDMEM=*nn* This *Tool Type* increases the window memory size for the wordprocessor. It should be increased from its 16000 byte default if a new document will be larger than 16K. The value *nn* in the argument is passed in bytes. The CLI Switch equivalent is **-W*nn***. The smallest size window possible is 8K.



The *Workbench Info* screen is shown above. At the bottom is the tool type input area. Click on the *ADD* gadget and type in the keyword, an equals sign, and the value of the argument in bytes. The window size may be increased to the limit of available RAM, however, **we strongly recommend wise use of this feature**. In a multi-tasking machine such as the Amiga, the available RAM must be shared among the programs running simultaneously. It is possible to increase the size of one window such that no other task is possible, or that the machine will crash.

If you wish to add another of the tool types, select the *ADD* gadget again and type in the next keyword and argument. When you have added as many of these tool types as you need, click on the *SAVE* gadget to make these permanent.

CLI SWITCHES

CLI Switches are placed following the name of the program to modify the defaults with which it boots. For example:

1> RUN PLATINUM_WORKS! -W50000

will set the default window size for the wordprocessor to 50K. The use of CLI Switches will override the settings within an icon. This is a convenient way to work on a larger-than-usual project, without having

to change the icon's tool types to the larger value and then back to your normal value.

LIBRARY FILE

Platinum Works! uses a special library file. The file *works.library* must be in the *libs* directory to which the system is assigned for the program to open.

MOVING THE DICTIONARY TO RAM

If you move the dictionary to RAM: for faster operation, you must append the following COPY commands and ASSIGN command to the beginning of your *startup-sequence* (located in the *S* directory), **after** the BINDDRIVERS and MOUNT commands, but **before** the LOADWB command.

MAKEDIR RAM:WORKS!

COPY SUPPLEMENT:USA40X.SYN RAM:WORKS!
COPY SUPPLEMENT:WEBTECH.LEX RAM:WORKS!
COPY SUPPLEMENT:USERDICT.LEX RAM:WORKS!
ASSIGN DICT: RAM:WORKS!

The command is necessary, otherwise the program cannot find its dictionary and thesaurus.

MENU ITEM KEYBOARD EQUIVALENTS

The following chart compares the Right-Amiga key combinations used in the various applications of **Platinum Works!** to select menu items from the keyboard.

	<u>WORD</u>	<u>SHEET</u>	<u>COMM</u>	<u>DBASE</u>	<u>SIDEWAYS</u>
A	Thesaurus			Mode Add	
B	Bold		Open Buffer	Browse	Bottom
C	Copy		Close Buffer	Mode Change	Character
D			Receive (D/L)	Record Delete	
E	Edit			Record Erase	
F	Find		Printer Off	Find Next	Left
G	Guess (Word)		Script Go		Glue Lines
H	Superscript		Hangup		Horizontal
I	Italic		View Script		
K	Continuously		MKeys		
L	Subscript		Load Buffer	Form Load	Line
M			Modem Setup	Form Move	Font Name
N	New	New	New	New	New
O	Open	Open	Open	Open	Open
P	Plain		Call	Find Previous	Top
Q	Quit	Quit	Quit	Quit/Form Quit	Quit
R	Replace		Review	Recall/Reset	Right
S	Save	Save	Save	Save/Form Save	Save Definition
T	Print		Print	Print	Print
U	Underline		Send (Upload)	Mode Update	
V	Paste		View Buffer		Vertical
W	Works!	Works!	Works!	Works!	Works!
X	Cut		Clear Screen	Record Store	
Z				Record Undo	
1					Small Font
2					Medium Font
3					Large Font

CHAPTER 20

WORDPROCESSOR REFERENCE

This section of the manual will reference the wordprocessor command menus individually. You will find this to be a useful reference guide as you encounter menu items you do not understand.

This portion of the manual makes the assumption that you are familiar with text entry and editing, using functions on the menus. If you are NOT, please review the Wordprocessor Tutorials and Overview sections of the manual.

THE PROJECT MENU

This menu controls items that are concerned with the total document (or "project"). You can load and save files and do multiple window management.

Project New (A-N)

The first command on the *Project* menu, *New*, opens an blank edit window. With sufficient available memory, four edit windows may be opened at one time.

Project Open (A-O)

The next command on the *Project* menu is *Open*. This command is used to load your documents. When the File Requester appears, you will see a list of files from the current default drive and directory. See Chapter 4, *File Requesters* for details on operation.

Project Close

The *Project Close* menu item closes the active edit window. If the document has not been saved, a requester will question whether you wish to save before erasing. If you do not save, all changes made since the last save will be lost.

If you attempt to close the only edit window that you have open, a special case ensues.

Closing your first (or only) edit window is how you re-size that window. When you first run the wordprocessor, it automatically gives you a 16K edit window. If you decide that this is not the size you want, you can use *Project Close* to change it. The steps are simple. Tell the wordprocessor you want to close the window. When it asks for verification, respond Yes. Immediately following that, you will see a requester that is asking how much memory to allocate to the window. If the value shown is fine, select OK or Cancel and the window will open with that amount. Otherwise, edit in the new value. Press Return or select OK when done.

Project Save (A-S)

Project Save As

Project Save and *Project Save As* are the menu items used to permanently store your documents to disk. They differ slightly.

Project Save displays the *Save File Requester* when selected from a window titled, *Untitled-1.doc*. Once a file has been saved, *Project Save* will update the file without displaying the requester.

Project Save As will always display the *Save File Requester* when selected.

See Chapter 4, *File Requesters* for details on operation.

Project Info

The *Project Info* command displays the statistics of your document. These appear in a centered requester on your screen. When you are finished with this, select the OK box by clicking on it with the right mouse button to make the requester disappear. This command can also be invoked by holding down the Right-Amiga and letter S keys simultaneously.

The information provided is:

- Page Length** This is the length of your physical page. The amount of lines printed on a page will be controlled by the top and bottom margins. Standard 11 inch paper with a normal 6 line per inch height will give you 66 lines on each page.
- Page Offset** This value is the number of spaces to be printed to the left of each line during printout. Optionally, you can make this a different value for odd numbered pages and even numbered pages.
- Top Margin** The number of lines the wordprocessor will skip at the top of each page. Default value is 6.
- Bottom Margin** The number of lines the wordprocessor will skip at the bottom of each page. Default value is 6. The number of actual lines usable on each page is expressed as Page Length - (Top Margin + Bottom Margin). Any headers or footers will come out of this usable lines per page.
- Line Length** The number of characters per line. The wordprocessor allows the screen length to be a different size than the printed line length. This is NOT advised as line breaks will not display correctly.

Justification This shows whether you are displaying your text with smooth margins on the left AND right (Flush), or just the left (Ragged).

Characters Used This indicator will tell you the number of characters in the current document.

Characters Free This indicator tells you how many characters are free in the active window. Windows are variable in size, with 64K being the norm and 200K as the effective maximum.

Word Count This informs you of the number of words in your document. (A word is one or more characters surrounded by spaces.)

Page Count This tells you the number of pages in your document. This can be inaccurate, if you make use of the HI (hanging indent) or CP (conditional page) formatting commands.

Project Works (A-W)

This menu item activates the **Platinum Works!** title bar. It is used to start another application or utility program.

Project Quit (A-Q)

This command is used to exit the wordprocessor and return to the main screen. This command can also be started by holding down the Right-Amiga key and typing "Q". The wordprocessor will present a requester verifying that you wish to exit, and if you respond "Yes", you will be returned to the main screen at once.

If you select *Project Quit* while viewing a window that is NOT the active edit window, the verification requester will appear in the active window, wherever that is. However, once the requester has appeared, the F5 function key will no longer be effective. You will have to use the window gadgets in the upper right hand corner of the screen to locate the active window.

If you click the mouse over the left gadget, it will put the current edit window "behind" all the other windows. Doing this repeatedly will move through all the windows (including AmigaDOS). When you have located the requester, you can complete the exit operation. If you use the left hand window gadget to locate a screen, you'll need to click the right hand gadget after you find the screen. This makes the current window come to the "front" of all the others, and when the window is full-sized, causes the proportional scroll gadgets to be visible once again.

THE PREFERENCES MENU

This menu controls certain items of the wordprocessor's appearance and editing actions. Default values, if you will. How the text appears while editing (justified or ragged), what color background is used, where the tab stops are, all these are controlled here. There is one other distinction of this menu, however. Anything located on this menu is saved in "format" files. These are configuration files that allow you to remember favorite the wordprocessor setups in disk files and load them back later. You might configure the wordprocessor one way when writing letters, and another when editing programming source files. By having both of these stored in format files, it only takes a few seconds to have the wordprocessor take on an entirely different "face". A set of defaults saved as "Word.fmt" will be substituted for the internal values when the program first loads.

Preferences Load

The first command on the *Preferences* menu is *Load*. This command is used to load your format files. When the File Requester appears, you will see a list of files from the current default drive and directory. See Chapter 4, *File Requesters* for details on operation.

Preferences Save

Project Save will always display the *Save File Requester* when selected. When the *File Requester* appears, you will see a ghosted list of files from the current default drive and directory. See Chapter 4, *File Requesters* for details on operation.

Preferences Editing Mode Overtyp

Preferences Editing Mode Insert

Toggles between the two text entry modes, just as Left-Amiga I does.

Preferences Justification Ragged

Preferences Justification Flush

This command controls whether the text appears on the screen as justified (FLUSH left *and* right), or RAGGED (flush left only). Under normal circumstances, the text on the screen appears just as it will during printout, if you have set the video line length to match the printed line length (see: *Preferences Line Length*). This command provides a vehicle for you to observe and approve the effect that justification will have upon your text. The text will instantly change on the screen. If you are entering text with the justification turned on, the text of each line will be justified as you complete the line.

When text is justified, "soft spaces" are inserted where necessary to move the text into its proper position. These soft spaces will print out on paper as real spaces, but you can locate them on the screen by typing Shift-F10. The areas made up of soft spaces will be shown as gray hatch patterns. Be careful when editing with justification enabled; if you should overtype a soft space with a normal space, the justification at that point in the line cannot change. The wordprocessor will add and delete soft spaces as you add and delete text. If you are not sure whether you are dealing with soft spaces or not, use the above mentioned procedure with Shift-F10, which toggles the "background" on and off.

Since the wordprocessor automatically reformats all paragraphs, engaging the justification should not affect the editing of your text at all (aside from the caution mentioned above regarding soft spaces).

If you turn on justification for the screen and then printout a document, the printout created will also be justified unless the text of the document turns off justification with a format command in the text. The justification of text can be controlled by the ".JU" and ".FR" commands, which are documented along with the rest of the format ("dot") commands in the wordprocessor Overview.

Preferences Line-Length

This command allows you to set the video line length to match the printed line length. This is the only method you have for correctly displaying line breaks on the screen.

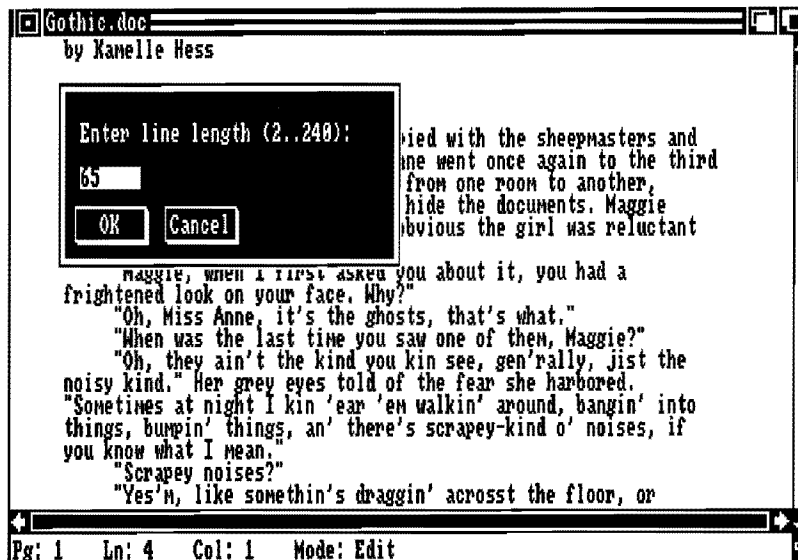
A full sized edit window can display 76 characters on a line. If your line length exceeds this, automatic horizontal scrolling will take place. In addition, the proportional scroll gadget at the bottom of the screen (which is the horizontal gadget) will reflect the relative position of the window as set against the total line length. Any time the gadget does not completely fill the space allocated for it, you know that the window cannot display all the text (either the number of lines or the number of characters).

As with justification, the value you use here will be the line length of the printed document unless you specify a different line length with the proper format command (.LL - Line Length). The line length can also be derived from the format commands .PO (page offset), .LM (left margin), and .RM (right margin). The formula would be $LL = RM - (LM + PO)$.

To use this command, either select *Preferences Line-Length* from the menu or type Right-Amiga L. A requester will appear containing the current line length. If you wish to change this value, edit the value, and press Return. If the information there is correct, select "OK".

If the line length you select is LESS than 76 characters, the wordprocessor will display the text centered against the screen width.

The *Line Length* requester looks like this:

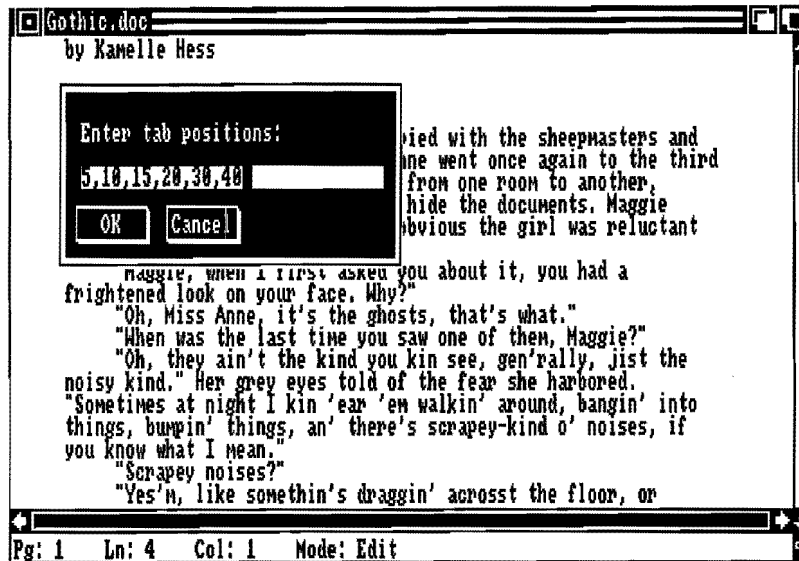


Preferences Tabs

The *Preferences Tabs* command allows you to define where your tab stops will be. A "tab stop" is the location where the cursor will stop next when you type the Tab key.

Select *Preferences Tabs* from the menu. The wordprocessor will display a requester where you may enter the new tab stop values. At this point, you should either enter the tab stops, or select "OK" if you have brought up this requester in error.

If you decide to input the new tab stops, after selecting the input area, type in the tab stops separated by commas, and press Return when you are done or click OK.



Preferences Foreground

This command allows you to adjust the color with which text is displayed in the current edit window. Please note that these colors will change if you use *Project Preferences* on the main screen to alter the display colors. Each edit window can have different Foreground and Background colors.

This is a useful method for keeping the edit windows straight. Also, we have found that special text attributes, such as boldface, are better displayed in some colors than others. (The default colors of black Foreground on white Background are such a case.)

Preferences Background

This command allows you to adjust the color of the background on which text is displayed in the current edit window. Please note that these colors will change if you use *Project Preferences* on the main screen to alter the display colors. Each edit window can have different Foreground and Background colors. (This command is the "inverse" of the Foreground command, above.)

This is a useful method for keeping the edit windows straight. Also, we have found that special text attributes, such as boldface, are better displayed in some colors than others. (The default colors of black Foreground on white Background are such a case.)

Preferences Markers Hide

Preferences Markers Show

Toggles the paragraph markers on and off, duplicates Shift-F-9.

Preferences Print Setup Page Length

Preferences Print Setup Page Offset

Preferences Print Setup Top Margin

Preferences Print Setup Bottom Margin

Preferences Print Setup Special

The *Preferences Page Setup* command and its related subcommands allow you to create a "general document format" for the wordprocessor that will take effect for printed output, unless specifically overridden by format commands in the text.

Page Length This is the height of your physical page. How many lines are actually printed on the page will be modified by the top and bottom margins. Standard 11 inch paper at 6 lines per inch, will give 66 lines on each page and is set ignoring margins. This can also be set with the PL dot command.

Page Offset This value is the number of spaces that will be printed to the left of each line during printout. Optionally, you can make this a different value for odd numbered pages and even numbered pages (which gives the effect of a right/left offset for output that is to be printed up double sided. The dot

commands PO, EO, and OO allow you to set Page Offset, Even Offset, and Odd Offset, respectively.

Top Margin This value represents the number of lines the wordprocessor will skip at the top of each page. The default value is 6. The corresponding dot command is MT.

Bottom Margin This value represents the number of lines the wordprocessor will skip at the bottom of each page. The default value is 6. The number of actual lines usable on each page is expressed as Page Length - (Top Margin + Bottom Margin). Any headers or footers will come out of this usable lines per page. The corresponding dot command is MB.

Special Displays a requester in which you can send special printer codes either thru AmigaDOS Preferences or directly to the printer thru the SER: (serial port) or PAR: (parallel port). (If the *Direct* gadget is highlighted, AmigaDOS Preferences is bypassed.)

The requester has input areas for the following printer codes:

<u>LABEL</u>	<u>FUNCTION</u>
Setup string	general setup code(s)
NLQ string	code sent to initiate NLQ mode
Plain text	code sent to initiate plain text

Bold text	code sent to initiate bold text
Underline text	code sent to initiate underline text
Italic text	code sent to initiate italic text
Superscript	code sent to initiate superscripting
Subscript	code sent to initiate subscripting

These setups are useful with printers that use cartridge and RAM/ROM fonts. For example, you can change type styles or sizes from this requester by defining *Italic text* as 12 point Times and **Bold** as 20 point Helvetica (for headlines). If you leave the Plain text definition unchanged, plain text will print in the default font. When you see *italic* text, it will print as 12 point Times. When you see **bold** text, it will appear in the printed copy as 20 point Helvetica .

Preferences File Format LF only

Preferences File Format CR+LF

Preferences File Format CR only

The *Preferences File Format* command is one of the most powerful areas of the wordprocessor. With this command, you can control how the wordprocessor shows an "end of line". You can also use this command to interrogate how a document was stored on the diskette (whether it had line feeds at the end of each line, or carriage returns followed by line feeds, or just carriage returns).

Normal "text file format" defines that an end of line indicator is a carriage return followed by a line feed. Files that you are preparing for upload to a communications service such as a local BBS or CompuServe™ should be made this way. However, AmigaDOS text file format defines that a line feed alone signals the end of a line. Files that you are preparing for use with an Amiga compiler or to be further edited with Ed (the AmigaDOS full screen text editor) should be prepared this way. The CR only end of line format was included for compatibility with TRS-80 Model I, III, 4 text file format, which defined an end of line indicator as just a carriage return. (The TRS-80 was another popular microcomputer a couple of years ago, and many of them are still in service. Since adding support for this format was easy, as long as we were going to support the other two, we added it.)

When you are editing the text file with the wordprocessor, the end of line marker appears as the normal paragraph symbol (roughly something that looks like a backwards "P"). This is placed in the text wherever you press the Return or ENTER key, and signals that you have forced the end of a line. The *Preferences File Format* command, however, is that which decides what this paragraph marker is translated into when the file is stored to disk.

When you load a file, the wordprocessor "looks" at the incoming text and attempts to determine which format this file is using. It then adjusts itself to this. Because of this, you should be able to edit and replace any file on your disk without having to consider which format it is in. If you are curious, or want to change the format, the check mark on this submenu will move to reflect the format of the file loaded. You may manually move it to another format, if you like. Let's take an example.

Most of the time, you will probably want to leave this set for LF only, since this is the accepted AmigaDOS text file format. However, let's assume that you have written a text file describing a program you've created and you wish to prepare this text for uploading to a bulletin board along with your program. You will want the end of each line to contain a carriage return followed by a line feed.

For a shorter file, the easiest method is to actually press Return at the end of each line, select CR+LF on the *Preferences File Format* submenu and store the document on diskette. However, for transmission to a friend who also has an Amiga, but does NOT have the wordprocessor, you'll probably want to store the file with line feeds only at the end of each line. When you load the text file you created previously, you'll see that the check mark on this submenu moves to the CR+LF indicator. With the mouse, you can move it to LF only and store the file again under a new name, or replace the existing file.

(For longer document files needing end of line indicators on each line, it will prove faster to write the document with word wrap, as normal, and then print it to a disk file. See: *Print Go File* later in this chapter.)

THE MODE MENU

This menu controls all your "global" text operations. A global text operation is some specific action that, while it does not HAVE to, can possibly affect the entire document. Moving or copying large blocks of text, and special text attributes fall into this category.

Each of the options on this menu selects a different "mode" of operation for the wordprocessor. The mouse pointer will change shape to reflect these mode changes, and the "Action" indicator at the bottom of the screen will detail exactly which mode you are in at any given time. Each edit window can be in a different mode.

When the mouse pointer changes shape, remember that the part of the pointer which "points" will be the upper left hand corner, no matter what the shape of the pointer.

Mode Edit (A-E)

The *Mode Edit* mode is perhaps the most common in the wordprocessor. In this mode, the mouse pointer appears as a pencil, with the point in the upper left hand corner. When you point at some text with the mouse in this mode and click the left button, the cursor will immediately move to this location in the edit window. This is very useful when scrolling through a document, editing it. When you spot a place where you want to make a change, you do not have to wait for the keyboard repeat speed to get the cursor over there. Simply point at it with the mouse and click.

The *Mode Edit* mode can also be engaged by holding down the Right-Amiga key and typing "E".

Mode Cut (A-X)

The *Mode Cut* mode is very similar to the *Mode Copy* mode. However, in this mode, you are either moving the block of text (as opposed to copying it), or deleting the block of text.

Moving a block of text is a two-step procedure. First you must cut the text from its current location, and then you may paste it down in its new

location. To accomplish the first step, cutting out the text, you will use the *Mode Cut* command.

When you engage the *Mode Cut* mode, the mouse pointer will appear as a pair of scissors. The point of the left blade is the active selector.

There are two ways to define the block of text. If you use the mouse, point to where you want to begin your block and press the left button. Continue to hold it and move the mouse pointer to "paint" the block you want to cut. The wordprocessor will highlight the block in inverse video as you go. (If you should make a mistake and want to exit the highlight operation without any action, just pull the pointer outside of the edit window at the corner. This will abort the highlight mode.) When you release the button, the text you have highlighted will disappear.

If you prefer not to use the mouse, you need to use the keyboard to define the block. Position the cursor at the start of the block and press the F9 function key. This "marks" the block's beginning. Use the cursor arrow keys to position the cursor at the end of the block, and press Return. The text you have highlighted will then disappear.

When the text is cut, it is placed into a temporary buffer, called the "Clipboard". It will remain there until you put something else on top of it. You can use the *Mode Paste* command to bring the text in the Clipboard back into the document.

If you never paste the text back into the document, you have deleted it. This is how the *Mode Cut* command serves double duty, both moving and deleting text. If you make a mistake with cutting text, don't worry. It is a simple matter to paste it back where you cut it from. Nothing is permanent unless you want it to be.

Mode Copy (A -C)

The *Mode Copy* command, along with its companions, *Mode Cut* and *Mode Paste*, are used to manipulate blocks of text. These commands make use of the AmigaDOS *Clipboard* device. Using block moves is also the manner in which you will transport data between edit windows.

Copying a block of text is a two-step procedure. First you must take a "picture" of the text you want to copy, and then you may paste it down in its new location. To accomplish the first step, taking a picture of the text, you must use the *Mode Copy* command. Besides using the mouse menus, you can engage this mode by holding down the Right-Amiga key and typing "C".

When you engage the *Mode Copy* mode, the mouse pointer will appear as a camera. The upper left hand corner of the camera is the active selector.

There are two ways to define the block of text. If you use the mouse, point to where you want to begin your block and press the left button. Continue to hold it and move the mouse pointer to "paint" the block you want to copy. The wordprocessor will highlight the block in inverse video as you go. When the block is complete, release the mouse button. If you should make a mistake and want to exit the highlight operation without any action, just pull the pointer outside of the edit window at any corner. This will abort the highlight mode. (Copying errors are not as critical as Cutting, where you remove the text. If you copy the wrong text, just copy the right text on top of it.)

If you prefer not to use the mouse, use the keyboard to define the block. Position the cursor at the start of the block and press the F9 function key. This "marks" the block's beginning. Use the cursor arrow keys to position the cursor at the end of the block, and press Return. This completes the block definition and does the copy, all at the same time.

When the text is copied, it is placed into a temporary buffer, called the "Clipboard". It will remain there until you put something else on top of it. You can use the *Mode Paste* command to bring text from the Clipboard into a document.

Mode Paste (A-V)

The *Mode Paste* command, which can also be invoked by holding down the Right-Amiga key and typing "P", is the culmination of the copy and move block operations. Whatever is in the paste buffer, whether it was

cut there or copied there, can now be pasted back into the document.

When you select the *Mode Paste* mode, the mouse pointer appears as a paste jar, with the tip of the handle being the active selector.

To use the paste mode, simply point to where you want the text to be inserted into the document and click the left mouse button. That's all there is to it. The text will be inserted at that location.

Pasting text does not remove it from the buffer. You may Copy or Cut once and paste as many times as you like. You may also cut or copy text into the buffer and then select another edit window before pasting it down. In fact, the text will remain in the paste buffer until you exit the program or put some other text on top of it.

Mode Style Plain (A-P)

Mode Style Bold (A-B)

Mode Style Underline (A-U)

Mode Style Italic (A-I)

Mode Style Superscript (A-H)

Mode Style Subscript (A-L)

The wordprocessor allows five different types of character formatting, **boldface**, underlined, and *italicized*; ^{super-} and _{sub-script}. The *Mode Style* command allows you to apply these to existing text. To apply them to text as you are entering it, you should make use of the style functions keys:

F6 Toggles **boldface** attribute on and off

F7 Toggles underline attribute on and off

F8 Toggles *italic* attribute on and off

You may use one or more of these simultaneously. However, for text that you have already typed, you do not want to go back and type it again to get the special character formatting. So, the wordprocessor gives you a way to "paint" these attributes on to existing documents.

When you move the mouse pointer over the *Mode Style* command, a pop-out menu will appear that contains the different styles. You'll notice that these are check marked to let you know which style or styles you are applying right now. The Plain style supersedes all the others, but **Bold**, Underline, and *Italic* can co-exist without problem. Pick the style or styles you would like to apply. Remember, you can select multiple items by clicking the left mouse button. .

When you select a style and enter the *Mode Style* mode, the mouse pointer appears as an artist's paint brush. The very tip of the brush is the active selector, since there is no real "upper left hand corner".

To apply the style to the text after you have selected it, you must define the block of text, just like the block *Copy* and block *Cut* operations.

To define the block of text, you have two choices. If you use the mouse, point to where you want to begin your block and press the left mouse button. Continue to hold it and move the mouse pointer to "paint" the block you want to define. The wordprocessor will highlight the block in inverse video as you go. If you should make a mistake and want to exit the highlight operation without any action, just pull the pointer outside of the edit window at a corner. This will abort the highlight mode. When you release the button, the text you have highlighted will have the selected attributes applied to it.

If you prefer not to use the mouse, you need to use the keyboard in defining the block. Position the cursor at the start of the block and press the F9 function key. This "marks" the block's beginning. Use the cursor arrow keys to position the cursor at the end of the block, and press Return. The text you have highlighted will then be styled.

If you have made a mistake, you can always go back and apply the Plain style to the text, and then re-apply the desired styles.

Here's an interesting technical note. When styling large blocks of text, it is much slower to apply the initial style or remove all styling, than it is to apply an additional style. In other words, if the text is underlined,

it can be boldfaced in a hurry. This is entirely normal. In 99% of your styling applications, though, the text block will be small enough to make the operation of the command instantaneous.

THE DOCUMENT MENU

The Document menu controls special features such as Find, Replace, the Spelling checker and the Thesaurus.

Document Find (A-F)

The *Document Find* mode lets you locate a character or string of characters in your document. You can combine this with the *Document Replace* command and change all the "Smiths" to "Smythes", if you like. Or you can just search without replacing.

When you select *Document Find*, a requester will appear asking you to enter the text you wish to search for. Select the input area and enter the character or string of characters you want to locate. Press Return when done and the cursor will immediately position to the first location.

The search always begins at the top of the document and moves down, in order to locate the string regardless of its location.

You may press the Left-Amiga and letter "A" keys simultaneously to search again, or make any editing changes. Right-Amiga F brings up the *Document Find* requester.

At any point, you can engage the *Document Replace* mode. You must define a search string in order for replace to work.

Many people use the comment function of the format lines to create "place markers" in the text of their documents that they can later return to with the *Document Find* mode. For example:

.. #1

Something important is in the text here. That is why I will want to search for the string "#1" later, to find my spot. I can have as many of these as I want, and they can even get descriptive.

.. end of example is here

I could locate this comment by looking for any piece of the text. However, it is usually a good idea to make the comment something unusual, so that it does not occur often in the text of the document. (How many times do you think I would have to search before I found the correct "is"?)

On later accesses to the *Document Find* command, you will notice that the string you specified the LAST time you used the command is still there. This is done on purpose to allow you to make editing changes or search for the same string again by selecting "OK". If you want to erase the current search string and enter an entirely new one, hold down the Right-Amiga key and type "X". This will erase the entire line.

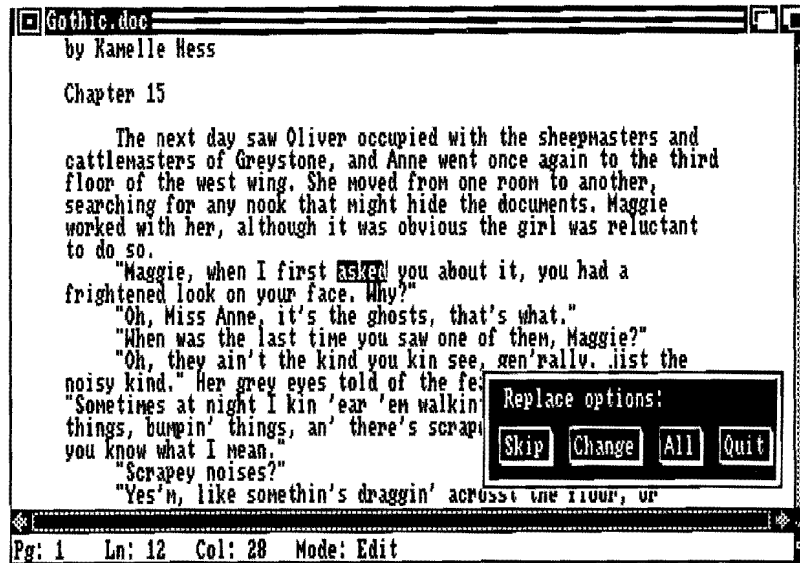
End of line markers are always stored, internally to the wordprocessor, as line feeds. They are translated into the proper format when stored to diskette. To search for the end of line marker, look for "^J" or "%10". (Carat represents a Control value, and the percent symbol indicates the decimal value for a character is following.) Forced page breaks are "^L" or "%12". Any character can be searched or Replaced by its decimal, Control or ASCII value.

Document Replace (A-R)

The *Document Replace* command works hand in hand with the *Document Find* command. In fact, you cannot use the *Replace* command until after you have defined the *Findtext* and located the first occurrence.

When you engage this command, the wordprocessor will bring up a requester asking you for the replacement string. This, as previously mentioned, makes the assumption that you have already located the string with the *Find* mode. Select the input area and enter the text of the replacement string. If you wish to do a global delete of the search string, just select "OK" here while the input area is empty. The wordprocessor will then replace the search string with the empty replacement string, effectively deleting it.

Under most circumstances, however, you will enter the replacement string. The wordprocessor will find the first occurrence of the search string, if it is not already positioned over it, and display its action requester:



To skip this location and proceed to the next occurrence of the search string, select *Next*. To change this occurrence of the string, select *Change*. To abort this replace operation (while remaining in the replace mode), select *Quit*. To change this occurrence and all SUBSEQUENT occurrences, select *All*. (Warning! You will no longer be prompted whether you should replace an occurrence, once you select *All*. The wordprocessor will replace until it can no longer locate the search string.)

If you know in advance that you are going to do a replace operation, you may find it useful to define the search string, and then immediately define the replace string. Skip over the occurrences you do not want to replace with the *Next* option, instead of repeated searches. *Document Replace* may also be activated with Right-Amiga R.

Document Spell

This menu item controls the spelling checker.

Document Spell Guess (A-G)

This selection will allow you to check the spelling of a single word. Highlight any letter of the word in question. Then select *Spell Guess*. The wordprocessor will check the spelling of that word.

Document Spell Document

This selection, when chosen, checks the spelling of the entire document.

Document Spell Window

This selection, when chosen, checks the spelling of that portion of the document that is displayed on the screen.

Document Spell Continuously (A-K)

The Spell As You Type option is toggled by this menu item. If the item is checkmarked, the option is on.

Document Thesaurus (A-A)

This menu item controls the Thesaurus.

THE PRINT MENU

This menu controls some final options regarding the physical printout of your document, and also holds the commands that start the printing. The only command on this menu that you would likely use before you are ready to print would be *Print Preview*.

Print Preview

The *Print Preview* command allows you to "print" your document on your screen before the actual printout on paper. This is a very useful command, because some of the wordprocessor's more advanced formatting commands (such as the hanging indent) will not display on your screen as you edit your document. The only way to see what effect they have on your document's appearance will be to use the *Print Preview* command. Dot commands that appear in the text will not

show on the screen. The "on screen" format of your document will be controlled via the wordprocessor's menu commands.

When you preview a document, it is shown on the screen EXACTLY as it will be printed out. All special character formatting (boldface, underline, etc.), headers, footers, and line/page breaks will appear correctly. There are other facilities within the wordprocessor for viewing page breaks "onscreen", however. Your main purpose in using this command should be to see how dot commands not shown on the screen will appear in the document.

The preview will start from the current cursor position, and move downward through the document. If you want to preview the entire document, make sure to home the cursor first. Shift-Left Arrow is a fast way to do this.

While a document is being previewed, you may press the Space Bar to pause the display, or the Esc key to abort. When the display is paused, pressing any key will cause it to resume. After aborting or completing a preview, the display will pause and wait for you to press a key before returning you to your document in the editor.

If you have turned on the single sheet printing, either with the menu command or the dot command, the wordprocessor will pause at the end of each page while previewing. Press any key to continue.

The only dot commands NOT honored by preview are the page offset (PO) and insert graphic (IP).

The line length of a full-sized the wordprocessor window is 76 characters. Yours may be fewer, if you have resized the window. If the line length of the document being previewed is greater than that, lines will wrap down to the next video line and end there (which gives you one full line and one short line for each printed line). This is unavoidable and entirely normal.

A complete list of dot commands is contained in the wordprocessor Tutorials.

There are two other methods of display page breaks with the wordprocessor, both of which may be regarded as easier than Print Preview. The on-screen page indicator, located in the status window, will give you the current page number, and the Left-Amiga J command can be used to display the next page break (as it will appear during the printout of the document). Each of these options is discussed in fuller detail in the Tutorials under "Displaying your page breaks".

Print Forward

This command allows you to start your printout at the current cursor position. This is useful when some error condition has forced you to abort a printout, and you wish to start it from some later point in your document. When you select this command, the wordprocessor will automatically send your document to the printer, just as if you selected *Print Go Printer*, except that the output will begin with the text of the line on which the cursor is positioned.

If you want this option to work correctly, you should position the cursor on the first line of a page (perhaps after a forced page break). The wordprocessor won't correctly print out "half pages" (i.e. your page breaks will not be right from that point on).

This command automatically sends output to the printer. You do not have the option of using *Print Forward* with a file or logical device.

Print Go Printer (A-T)

Print Go File

This command is used to start your printout. You have two options with *Print Go*. The first, *Printer*, specifies that the printout should be sent to the printer, via whatever driver you have selected with Preferences (which is part of AmigaDOS). On the other hand, *File* tells the wordprocessor that you want to send your printout to a disk file or other logical device. (You might want to print to a disk file in order to get carriage return/linefeeds on the end of each line, or prepare a disk file image of your document for later copying to the printer, etc.)

When you select the *Print* menu, and move the mouse pointer down over the word *Go*, a pop-out menu will appear to the side with your

options. Moving the pointer over the word *Printer* and releasing the right mouse button will start your printout at once. The printout will automatically begin from the top of the document, so there is no need to move the cursor before selecting this command.

If you select *File*, a different chain of events will take place. The wordprocessor will display a requester that asks for the name of the disk file. You can enter the disk filename here, complete with drive and directory information. For example, a response of "DF1:TEST" would store the output in a disk file called TEST on whatever disk was in drive 1. A response of "DF0:DOCUMENTS/MY-STUFF" would store the output in a file called MY-STUFF located in the directory called DOCUMENTS on whatever disk was loaded in drive 0.

With *Print Go File*, you may send your output to any logical device name. For example, if you were to enter the device name "PAR:", your output would be sent directly to the parallel device, which completely bypasses Preferences and its printer drivers. This is what you would do for a printer that is not supported with a Preferences driver. By using the wordprocessor's "printer variable" feature to imbed control characters in your document and then directing the printout to PAR:, you can make use of all your printer's special features, if supported by Preferences.

(Note: When using the print to file function to bypass Preferences, you will not be able to use the built-in character formatting; boldface, underline, and italics. These send escape sequences that the Preferences printer drivers understand and then translate into the necessary codes for your printer. You must use whatever built-in functions your printer offers with the printer variable feature of the wordprocessor. If your printer does not offer the feature, you will likely be unable to use it.)

Once a printout has commenced, whether to the printer or to a file/device, you may press the Space Bar to pause output or the Esc key to abort printing. Note that each of these will be processed at the END of the current line, so the effect won't be instant. If you press the key repeated times, the extra keys will be buffered up. When the

printout is over (or paused with the Space Bar), pressing any key will return you to the document.

For additional information on using the *Printer Go File* command to drive printers unsupported by any Preferences driver, consult the "What to do when your printer is not in Preferences" section in the Overview.

Print Quality Draft

Print Quality NLQ

Print Quality allows you to switch between the *Draft* and Near Letter Quality (*NLQ*) modes of your printer (if the printer supports these two different modes.) The *Draft* mode is usually used for its speed in printing non-critical material; the *NLQ* mode is usually used when appearance is of more importance than speed.

Print Paper Type Fanfold

Print Paper Type Single

This command tells the wordprocessor whether you are printing on continuous feed paper (Fanfold) or single sheets (*Single*). When you are in *Fanfold* mode, printing will continue from one page to the next without pause.

However, when you engage *Single* mode, printing will pause at the end of each page, and the wordprocessor will wait for you to press a key before continuing.

The check mark on this command's pop-out menu will show the current status. The equivalent dot command is SS (single sheet).

Please note that this command will be honored by *Print Preview*. If you are previewing a document while in *Single* mode, the preview will pause at the end of each page and wait for you to press a key.

Print Page Number

This command is used to tell the wordprocessor to begin numbering pages for the current document with a value different from 1. It is equivalent to the dot command PN (page number). However, you'll

find that you use these two items for very different tasks.

The dot command PN allows you to change the page number while the document is printing. For example, you might want the first three pages of a document to be introductory information, and the fourth page, "Page 1". The command ".pn=1" at the top of page 4 would reset the page number as the document is printing.

This menu command, however, is useful when you're printing a document that occupies several disk files and reach the end of one module. You can examine the printout to see what page you stopped at, and use this command to start the next module where the last one left off, without having to modify the text to insert a dot command.

Print Line Spacing

This command sets the line spacing that the wordprocessor will use when it prints out your document. The normal setting of "1" produces single spaced text. A setting of "2" would produce double spaced text, a setting of "3" would produce triple spaced text, etc.

The line spacing can also be controlled within your document with the LS (Line Spacing) dot command. By using the dot command in a format line within your text, you can even adjust line spacing to-and-from double spaced text within the confines of a single page.

The value for line spacing that you set with this menu command will be used for the entire document as the normal value, and unless overridden by a format line, will not be changed.

To use this command, select it from the *Print* menu and a small requester will appear asking you to input the desired line spacing. Select the open box in the center of the requester (where the current line spacing is displayed) and input the new value. Press Return or select OK when done. Line spacing is only seen at print time or with the *Print Preview* command. It will not alter the screen display of the edit window.

Print Copies

This command is used to tell the wordprocessor how many copies of the

current document to print. Normally, this is defaulted to 1. However, if you need more than one copy of something, you can increase this.

When you select this command, the wordprocessor will pop a requester asking for the number of copies. If the current value is not correct, enter the correct number. Press Return or select OK when done. This is a passive command. It does not start the printout, you still need to use the normal commands for that. It only takes effect during the printout.

CHAPTER 21

SPREADSHEET REFERENCE

This portion of the manual describes the various spreadsheet menus, options and their keyboard command equivalences.

NOTES

- When in the edit mode, the F9 key calculates any formula in the cell you are editing and displays the product of that formula. All longhand formulas (+A1+B1+C1) and @function formulas are replaced by their literal values and the formula is deleted. If you press the F9 key by mistake, press the Esc key to return the formula to the cell. Do NOT press the Return key, or the formula will be permanently lost.
- Not all electronic spreadsheets store their worksheets in the same way. **THE WORKS! PLATINUM EDITION** stores its worksheets one particular way (with a *.sh*t extension) while several others store their worksheets using the file format of a well-known spreadsheet program for the IBM world. Because of popular demand, we have added support for this other type of worksheet. The file extension for that popular file format is *.wks*. Toggle the Pattern: gadget to change these extensions.
- All the spreadsheet's menu items are accessible through keyboard commands. All keyboard commands are preceded by a */*. Take the Copy command of the Range menu; its entry looks like this:

Range Copy (/RC)

What this notation means is you can also select this command by pressing the */* key, followed by the *R* and *C* keys for Range Copy. This is a shortcut to using the mouse for menu item selections, and will speed up often used commands, especially for those of you who prefer the keyboard to the mouse.

You may have noticed that duplicate initials exist in several menu sequences. Nothing special must be done to access the first occurrence of the initial. Any successive occurrence must be preceded by a number representing the position of that occurrence in the menu. For example, to access *Project Save*, use /PS; to access *Project Save As*, use /P2S. If you want to select *Print Go Printer*, use /2PGP; to select *Print Graph*, use /2P2G.

THE PROJECT MENU

The *Project* menu controls the loading, saving and deleting of worksheets, the display of worksheet statistics, and exiting the application.

Project New(/PN or A-N)

The first command on the *Project* menu, *New*, opens an blank worksheet.

Project Open (/PO or A-O)

The next command on the *Project* menu is *Open*. This command is used to load your worksheets. When the File Requester appears, you will see a list of files from the current default drive and directory. If the file or files you want to access are located on another disk drive, you need to click on the *Drive* gadget until the correct name appears in the *Directory* input area. See Chapter 4, *File Requesters* for details on operation.

Project Close (/PC)

The *Project Close* menu item closes the worksheet. If the worksheet has not been saved, a requester will question whether you wish to save before closing. If you do not save, all changes made since the last save will be lost.

Project Save (/PS or A-S)

Project Save As (/P2S)

Project Save and *Project Save As* are the menu items to use to permanently store your worksheets to disk. They differ slightly in operation.

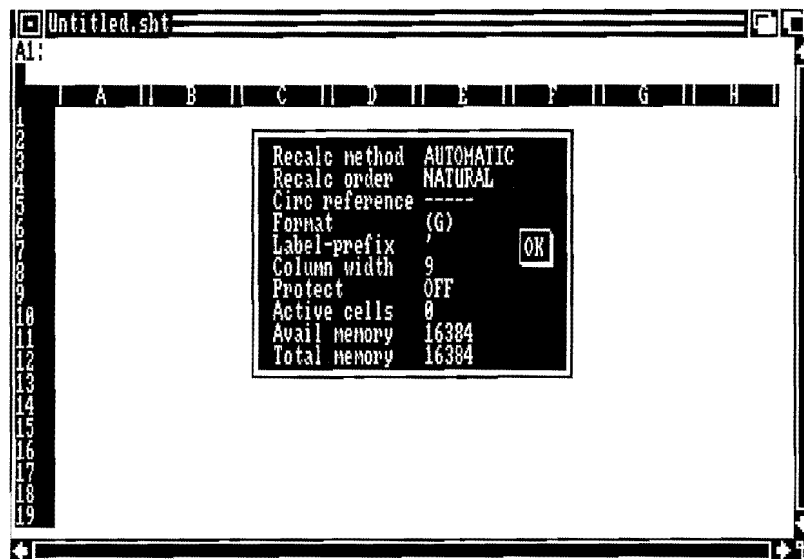
Project Save will display the *Save File Requester* when selected from a window titled, *Project: Untitled*. Once a file has been saved with a filename, *Project Save* will save the changes without displaying the *File Requester*.

Project Save As will always display the *Save File Requester* when selected.

When the *File Requester* appears, you will see a ghosted list of files from the current default drive and directory. See Chapter 4, *File Requesters* for details on operation.

Project Info (/PI)

This command displays the **Global Settings Window**. This pop-up window shows you all the current worksheet defaults, such as recalculation order and method, default column width, first cell with circular reference, and default label prefix.



You can select the "OK" gadget with the mouse pointer, or press any key on the keyboard and the status window will disappear. The various

options in the status window are changed from the *Worksheet* menu.

Project Works (/PW or A-W)

This menu item activates the **Platinum Works!** title bar. It is used to start another application or utility program.

Project Quit (/PQ or A-Q)

This menu item quits the application and returns to the main screen. You will be prompted with a Safe Quit to save a changed sheet.

THE WORKSHEET MENU

Use the commands on the Worksheet menu to control global settings (your current worksheet default values). The commands include the following:

Worksheet Insert

You can insert a column or row into a worksheet. This can come in handy if you have a worksheet needing one more item inserted in the middle of the worksheet. With *Worksheet Insert*, there is no problem because when a column or row is inserted, the columns to the right or rows below automatically move over the appropriate number of columns or rows. Formulas are automatically updated to account for the new location of moved cells.

Worksheet Insert Column (/WIC)

To insert a column, place the cell pointer on the column you want to insert. Select *Worksheet Insert Column*. The spreadsheet then prompts you to:

Enter range of columns to insert:

Press the Return key. If the cell pointer is not on the column you want to insert, either enter the address from that column and press the Return key or select a cell from that column with the mouse. You may specify a range of columns to insert multiple columns.

Worksheet Insert Row (/WIR)

To insert a row, place the cell pointer on the row you want to insert. Select *Worksheet Insert Row*. The spreadsheet then prompts you to:

Enter range of rows to insert:

Press the Return key. If the cell pointer is not on the row you want to insert, either enter any address from that row and press the Return key or select a cell from that row with the mouse. You can insert more than one row by entering a two-address range.

Worksheet Delete

The *Worksheet Delete* command lets you delete columns or rows from the worksheet. Note that while the data (values, formulas and labels) is erased, the actual column or row remains; only the data is erased. The data in columns to the right and rows below a deletion will automatically move up or over to fill in the erased column(s) or row(s). All formulas are automatically updated to account for the new location of formulas.

Worksheet Delete Column (/WDC)

To delete a column, place the cell pointer on the column you want to delete. Select *Worksheet Delete Column*. The spreadsheet then prompts:

Enter range of columns to delete:

Press the Return key. If the cell pointer is not on the column you want to delete, enter any address from that column and press the Return key or select any cell from that column with the mouse. You may specify a range to delete a range of columns.

Worksheet Delete Row (/WDR)

To delete a row, place the cell pointer on the row you want to delete. Select *Worksheet Delete Row*. When you see:

Enter range of rows to delete:

Press the Return key. If the cell pointer is not on the row you want to delete, either enter any address from that row and press the Return key or select a cell from that row with the mouse. You can specify more than one row by entering a range.

Worksheet Column

Set the number of characters that fit into an individual column with this command. The default value is a width of nine characters for each column. You can set each column individually between 1 and 75 characters wide.

First, position the cell pointer anywhere in the column you want to adjust. Then use one of the sub-commands listed below. If you want to change all the columns in the worksheet, use *Worksheet Column Global*.

Worksheet Column Global (/WCG)

The global column width is the default width for all columns in the worksheet. Unless you specifically change a column, or change them all using this command, this is the cell width. Select *Worksheet Column Global*. You are prompted for the new column width. Enter the new value and press the Return key.

Worksheet Column Set (/WCS)

When you select Set, you are asked to:

Enter column width (1..):x

(where x is the current width of the column holding the cell pointer). The number you enter (1-75) overwrites the current global default (9). Press the Return key to alter the column.

Worksheet Column Reset (/WCR)

This command restores the column at the cell pointer to the global default setting.

Worksheet Titles

A worksheet designed with rows and columns usually ends up with at

least one row (or column) of titles. For example, the top row may list the months of the year (each column is titled JAN, FEB, etc.). In addition, the first column might contain store numbers and the labels in column A title each row.

If you scroll beyond the last column displayed, the list of store numbers scrolls out of sight. Scrolling downward can mean that the months disappear. The solution is to lock the top row and first column. That way, as the worksheet is scrolled, the titles stay put.

There are three titling options: horizontal OR vertical and horizontal AND vertical. To unlock them, a clear option is provided. When you select the Titles submenu, checkmarks are visible next to the option in effect. The current titles are saved when you save a worksheet.

Worksheet Titles Clear (/WTC)

The cell pointer can be located anywhere in the worksheet when the command is issued. Select *Worksheet Titles Clear* and all defined titles are unlocked.

Worksheet Titles Horizontal (/WTH)

All rows above the cursor are locked when this command is issued.

Worksheet Titles Vertical (/WTV)

All columns to the left of the cursor are locked when this command is issued. When both are checkmarked, it locks the column(s) and row(s) directly above and to the left of the cursor. Therefore to freeze row 1 and column A, place the cursor at cell B2 when you issue the command.

Worksheet Format

The *Worksheet Format* command offers sub-commands to adjust the appearance of all cells in the worksheet (the exception: cells containing labels are controlled by the *Worksheet Label* command). When you select *Worksheet Format*, all formats set with the *Range Format* menu are over-ridden. You have to restore any that were important. The format you select here is applied to the entire worksheet immediately.

Worksheet Format General (/WFG)

The *General* format is the worksheet default. Unless you change the format, or override a specific range, this is the format used. The format is whole numbers with as many digits displayed as fit in the width of the column. Trailing zeros are suppressed.

Worksheet Format Fixed (/WFF)

This is the same as the *General* format except that you specify the number of decimal places displayed, between 0-14. When you select this format, you are first prompted for the number of decimal places, with 2 as the default. The actual number of decimal places that can be displayed depends on column width (for large numbers, make wider columns). This is the format to use if you do not want to suppress trailing zeros.

Worksheet Format Scientific (/WFS)

This displays numbers in scientific (exponential) notation. For example, 5 billion (5,000,000,000) would be 5.00E+9.

Worksheet Format Currency (/WFC)

This format is used to display monetary figures. The system first asks the number of decimal places to show, (2 is the default). This format shows a dollar sign before each number, has a comma between thousands, and places any negative values in parentheses.

Worksheet Format , (/WF,)

This command places commas in large numbers to denote thousands. Note that a comma takes up space in a column. If a number is too large to be displayed, the column is filled with asterisks. This format is the same as *Currency*, but without the dollar signs.

Worksheet Format Percent (/WFP)

This format displays the value times 100, with a fixed number of decimal places, followed by a percent sign (%). For example, 0.8654 becomes 86.54%. Again, remember that the percent sign takes up cell space.

Worksheet Format +/- (/WF+)

As an alternative to displaying an actual value, you may use pluses and minuses to create a positive and negative bar graph of a column of numbers. Normally, you want to duplicate the column of numbers into the adjacent column first so that the actual values are displayed next to the graph. You also might want to scale the graph using a formula that smooths the differences between the highest and lowest values. Remember that the column width may have to be adjusted to display the graph in its entirety. Negative values are displayed with minuses (-), positive with pluses (+).

This format is sometimes called a horizontal pictograph.

Worksheet Format Text (/WFT)

The *Text* command displays a formula in the body of the worksheet. Remember that column width may have to be adjusted to display the whole formula.

Worksheet Format Date (/WFD)

In this special format, a positive number (rounded off to an integer) is considered to be the serial number, sometimes called a serial date, of a particular date. The number 1 is 01-Jan-1900, and 73049 is 31-Dec-2099. (You can generate these serial dates with the *@DATE* and *@TODAY* functions.)

These cells are displayed in the format DD-MMM-YY format. Years greater than 2000 will have a 1 prefixed in them. For example, 16-JAN-86 and 02-FEB-102, are 01/16/1986 and 02/02/2002, respectively.

Worksheet Label

Making a worksheet visually attractive is important for more than aesthetic reasons. Especially in large worksheets, a neatly organized worksheet is easier to understand. It is possible to organize text labels in three ways within a given cell or over a range of cells. You can have cell labels centered, or displayed to the extreme right or left side of the cell.

Worksheet Label is to *Range Label* what *Worksheet Format* is to *Range Format*. It sets all the label cells in the sheet to whatever format you select, and it establishes the new default label format.

Worksheet Label Left (/WLL)

This places a label to the left side of a cell. You can do the same thing when you enter the label by preceding it with an apostrophe (').

Worksheet Label Center (/WLC)

Use *Center* to place a label in the center of a cell. You can do the same thing when you enter the label by preceding it with a caret (^).

Worksheet Label Right (/WLR)

Use this option to place a label to the right side of a cell. You can do the same thing when you enter a label by preceding it with double quotes (").

Worksheet Protect

Because it is so easy to change the contents of a cell, a protection facility has been incorporated into the spreadsheet. It is possible to protect a cell or cell range from alteration or erasure.

The default is that cells in a worksheet are protected, but the master switch (*Worksheet Protect*) is off. Protection status is checked with the *Worksheet Status* command which shows the current defaults for many global settings. Protection is ON or OFF. To set protection ON, use the *Worksheet Global Protect Enable* command. Every cell is then protected and you can unprotect individual ranges.

Worksheet Protect Enable (/WPE)

This sub-command turns protection on for the entire worksheet. However, the *Range Unprotect* command can override the global setting for specified cells and ranges. Even empty cells are protected, so a cell must be unprotected to be used in any way except to have its contents read.

Worksheet Protect Disable (/WPD)

This sub-command turns protection off for the entire worksheet. Even

cells protected individually are unprotected when protection is disabled, and no cells can be protected as long as this is the case.

THE RANGE MENU

Use the *Range* menu to perform an operation, such as *Copy* or *Move*, on a range of cells. A range of cells can be one cell or a whole worksheet, depending on how you define the range. This menu also contains the *Range Format* commands, which you use to control the appearance of portions of the spreadsheet. The commands are:

Range Copy (/RC)

You can copy individual cells or ranges from one location to another within a worksheet. Formulas can also be copied from one location to another. In the process, the spreadsheet alters the formulas to represent ranges within the destination range. For example, if a formula placed in column A totals figures in column A and is copied to column B, the copied formula totals figures in column B.

To copy a cell, place the cell pointer on the source cell. Select *Range Copy*. The input area displays:

Enter range to copy FROM: (Present Address)

If the cursor is on the source cell, press the Return key. Otherwise type in the source cell or point to it with the arrow keys or mouse. The input area now displays:

Enter range to copy TO:

At this point, you should type in the destination cell or point to it with the arrow keys or mouse. Remember, if you type the destination cell manually, you must press the Return key.

To copy a range of cells, select *Range Copy*. The input area displays the message:

Enter range to copy FROM: (Present Address)

Select the range you want to copy. To do this enter the upper left-hand cell of your source range, two periods, and the lower right-hand cell. You can also use the point mode to enter a cell range. If you are not sure how to point, please read Chapter 10A, Using the Point Mode. The input area now displays the message:

Enter range to copy TO:

Either enter the upper left-hand cell of the destination range, or select that cell with the arrow keys or mouse. There is no need to specify the second part of the destination address since the size of the range is specified by the source address.

NOTE: Destination cells are erased when data is copied into them. If you copy to a destination range that is within the source, you may lose data.

Range Move (/RM)

The *Range Move* command is like the *Range Copy* command, except that the source range (the range you are copying FROM) is erased after the copy is complete.

Range Erase (/RE)

You may want to erase only a portion of a worksheet. Specify the address as described under *Range Copy*. When you select *Range Erase*, the spreadsheet prompts:

Enter range to erase:

You can enter a single cell or a range (two cell addresses separated by two periods).

Once you erase a range you cannot recover it. Please make sure that the addresses are absolutely accurate.

Range Format

Use the *Range Format* command to adjust the appearance of a particular cell or group of cells. (The exception is cells containing

labels, which are controlled by *Range Label*.)

The operation of all the sub-commands is essentially the same. Select the format option you want, and then the spreadsheet prompts you for the range to format. Input this range by typing it manually or pointing to it with the arrow keys or mouse. When you select the range, the spreadsheet does the function.

Range Format Reset (/RFR)

The *Range Format Reset* sub-command resets all format settings to the default value, which is whatever was set last with *Worksheet Format*.

Range Format General (/RFG)

The *General* format is the worksheet default. Unless you change or override a specific range, this is the format used. The format is whole numbers with as many digits displayed as fit in the width of the column. Trailing zeros are suppressed.

Range Format Fixed (/RFF)

This is the same as the *General* format except that you specify the number of decimal places displayed between 0-14. When you select this format, you are first prompted for the number of decimal places, with 2 as the default. The actual number of decimal places that can be displayed depends on your column width (if you want large numbers, make wider columns). This is the format to use if you do not want to suppress trailing zeros.

Range Format Scientific (/RFS)

This displays numbers in scientific (exponential) notation. For example, 5 billion (5,000,000,000) would be 5.00E+9.

Range Format Currency (/RFC)

This format is used to display monetary figures. The system first asks for the number of decimal places to show, with 2 as the suggested default (which is normal for money). This format shows a dollar sign before each number, has a comma between thousands and places any negative values in parentheses.

Range Format , (/RF,)

This command places commas in large numbers to denote thousands. Note that a comma takes up space in a column. If a number is too large to be displayed, the column is filled with asterisks. This format is the same as *Currency*, but without the dollar signs.

Range Format Percent (/RFP)

This format displays the value times 100, with a fixed number of decimal places, followed by a percent sign (%). For example, 0.8654 becomes 86.54%. Again, remember that the percent sign takes up cell space.

Range Format +/- (/RF+)

As an alternative to displaying an actual value, you may use pluses and minuses to create a positive and negative bar graph of a column of numbers. Normally, you want to duplicate the column of numbers into the adjacent column first so that the actual values are displayed next to the graph. You also might want to scale the graph using a formula that smooths the differences between the highest and lowest values. Remember that the column width may have to be adjusted to display the graph in its entirety. Negative values are displayed with minuses (-), positive with pluses (+).

This format is sometimes called a horizontal pictograph.

Range Format Text (/RFT)

The *Text* command displays a formula in the body of the worksheet. Remember that column width may have to be adjusted to display the whole formula.

Range Format Date (/RFD)

In this special format, a positive number (rounded off to an integer) is considered to be the serial number, sometimes called a serial date, of a particular date. The number 1 is 01-Jan-1900, and 73049 is 31-Dec-2099. (You can generate these serial dates with the *@DATE* and *@TODAY* functions.)

These cells are displayed in the format DD-MMM-YY format. Years greater than 2000 will have a 1 prefixed in them. For example, 16-JAN-86 and 02-FEB-102, are 01/16/1986 and 02/02/2002, respectively.

Range Label

Much the same way *Range Format* offers commands to control the display of values, *Range Label* controls the display of labels. Making a worksheet visually attractive is important for more than aesthetic reasons. A neatly organized worksheet is easier and faster to use and can reduce errors. You can have labels centered or displayed to the extreme right or left side of the cell. Since these are *Range* commands, you can specify single cells or ranges of cells.

First you specify the format and then the cell(s) to apply the format. You can format a range in advance, if you know that it will be filled in with labels later. Otherwise, as you enter labels, they appear in the format specified by *Worksheet Label*.

Range Label Left (/RLL)

This places a label to the left side of a cell. You can do the same thing when you enter the label by preceding it with an apostrophe (').

Range Label Center (/RLC)

Use Center to place a label in the center of a cell. You can do the same thing when you enter the label by preceding it with a caret (^).

Range Label Right (/RLR)

Use this option to place a label to the right side of a cell. You can do the same thing when you enter a label by preceding it with double quotes (").

Range Style

This option allows you to "style" your labels or values to make your worksheet more visually appealing, or to bring someone's attention to certain portions. To "style" a range, enter the range from the keyboard, use the mouse pointer or the point mode method. To make the cells attributes both **bold** and underlined, you would first select *Range Style Bold*, highlight the range, then select *Range Style*

Underline and highlight the range again.

Range Style Plain (/RSP)

This option is used to remove all other *Style* attributes.

Range Style Bold (/RSB)

Boldfaces any data displayed in the specified range.

Range Style Underline (/RSU)

Underlines any data displayed in the specified range.

Range Style Italic (/RSI)

Italicizes any data displayed in the specified range.

Range Protect

Because it is so easy to accidentally change the contents of a cell, a protection facility has been incorporated into the spreadsheet. You can protect a cell or cell range from alteration or erasure.

The default is that all cells in a worksheet are protected, but the master switch (*Worksheet Protect*) is off. This global protection can be checked with the *Worksheet Status* command.

If *Global Protection* is OFF, no cells can be protected. When you switch *Global Protection* ON, you can protect and unprotect individual ranges with the *Range Protect* command. Remember, when you switch global protection ON, all the cells in the sheet become protected. You must first unprotect the cells you need to alter.

Range Protect Disable (/RPD)

To unprotect cells or ranges, select *Range Protect Disable*. The spreadsheet prompts you to:

Enter range to unprotect:

Select the cell range in the normal fashion.

Range Protect Enable (/RPE)

This command works like *Disable*, except that it protects the selected range.

Range Name

The spreadsheet allows you to name a range of cells for easy reference. For example, let's say a row of cells constitutes February's gross receipts. Instead of referring to the range B6..G6, you could name it FEBSALES. You can even use the name within a formula. So instead of writing a formula for totaling the row, you can write:

@SUM(FEBSALES)

Keeping track of named ranges is much easier when you press the F3 key whenever you are asked:

Enter Range:

The F3 key displays a requester listing all named ranges and their addresses. You can highlight ranges with the mouse, then select the Select gadget to satisfy the entry request.

What's the advantage to using this method, as opposed to the point mode? Well, there are two. First, you can reference a range that does not appear in the current window or is too far spread apart to use the mouse pointer effectively. In fact, it can be in the farthest corner of your worksheet. And second, even if this range of cells gets moved later, using the named referenced will allow all the formulas which use it to "follow it around" the worksheet.

Range Name Create (/RNC)

To create a named range, select *Range Name Create*. You are asked:

Enter (range) name: (up to 15 characters long)

When you press Return, you are then asked:

Enter range:.

Select the range to be named. If there are ranges already named, press the F3 function key to display the *Range Name Requester* so you can select a range from the list.

Range Name Right (/RNR)

You can use the labels that are already in a worksheet to name adjacent cells. For example, if column A contains an inventory of products, you can name the adjacent cells (sales figures) in column B by the labels in column A. In this way, you can use the values in column B as part of formulas without having to name each individual cell or remember its address. You can name the figures in column B by the existing labels in column A:

	A	B	C	D	E	F
1		JAN	FEB	MAR		
2	TILE	9000				
3	GLUE	2000				
4	GROUT	700				
5		----				
6	TOTAL	11700				
7						

If you used *Range Name Right* on the range A2..A4, you would have defined a range of labels pointing to values to their right. Later, you could use the labels TILE, GLUE, and GROUT in formulas exactly as you might the cell names B2, B3, and B4.

Only the adjacent cell below, above, or to the left or right can be named by a label. *Range Name Right* defines cells to the right of the labels. When you select this command, you are asked to select the range to name. Select the range of the LABELS, not the VALUES. The values are assumed from the direction you specify.

Range Name Left (/RNL)

This is the same as *Range Name Right*, except it defines cells to the left of the range that is named.

Range Name Below (/RNB)

This command defines cells below the range that is named.

Range Name Above (/RNA)

This command defines cells above the range that is named.

Range Name Delete (/RND)

To delete a range name (not the contents of the range), select *Range Name Delete*. The *Range Name Requester* appears. Select the range name to delete and select the Select gadget. Remember, you can reference the same range through two or more names. If you do this often, delete extra names.

Range Name Erase (/RNE)

Range Name Erase completely clears all defined range names.

RANGE IMPORT AND EXPORT MENUS

Using **Range Import** and **Range Xport**, you have the ability to:

- Combine worksheets
- Move data from one worksheet to another
- Copy data from the spreadsheet and insert it in a document
- Insert text written in the wordprocessor in a worksheet
- Take columns of numbers created in a wordprocessor and convert them to columns and rows in a spreadsheet

The spreadsheet and the wordprocessor accomplish this using the AmigaDOS Clipboard facility. While you do not have to be familiar with how Clipboard works, your only concern should be that data can be moved from one program to the other with ease.

The flexibility of Clipboard is such that even if you do not have enough memory to run the spreadsheet and the wordprocessor simultaneously,

you can do a **Range Xport** with the spreadsheet, quit the spreadsheet, load the wordprocessor and do a **Text Paste** with no problems whatsoever. The reverse examples also hold true; while running the wordprocessor, do a **Text Cut** or **Text Copy**, quit the wordprocessor, load the spreadsheet and do a **Range Import**.

The functions documented below use the WORKS! PLATINUM EDITION wordprocessor and spreadsheet for examples. While other Amiga programs support a Clipboard function, we cannot guarantee that it will work as documented with those programs.

RANGE IMPORT

This menu item will import information into the worksheet in one of several ways. The location of the cell pointer is where the data will be entered. If the cell pointer is in a location where data exists, then the imported data will delete the data present and overwrite it with the information you highlighted with **Range Xport** from the spreadsheet or **Mode Copy** or **Mode Cut** from the wordprocessor.

Range Import Formulas (/RIF)

This option will be used to combine two worksheets or portions of one worksheet to another. The upper-left cell address of the defined range from **Range Xport Formulas** will appear where the cell pointer is located when doing the **Range Import Formulas**. Any data existing in the worksheet, that appears where the **Range Xport Formulas** data will be written, will be automatically deleted.

Any formulas that are imported and contain relative addresses are automatically adjusted to the new cell address. If the **Range Xported Formulas** contained a range of A1..D6, and if the cell pointer was located at F1 when **Range Import Formulas** was selected, any formulas from **Range Xport** will be changed to reference their new location in the worksheet. Should cell B6 from the **Range Xported Formulas** contain the formula **@SUM(A1..A6)**, the formula would be changed to **@SUM(G1..G6)** when it was imported, using the above example. If you have trouble understanding this, please read "Copying Cells with Relative Formulas" in Chapter 10B.

This example gives the effect of having two separate worksheets in one. To integrate data from one worksheet to another, the formulas **Range Xported** must contain absolute addresses. Refer to "Copying Formulas with Relative and Absolute Addresses" in Chapter 10B.

Range Import Numbers (/RIN)

This option permits you to take a table of numbers created with the wordprocessor and have those numbers, and any corresponding labels, copied into a worksheet.

To do this, you would select **Mode Copy** or **Mode Cut** with the wordprocessor and highlight the range you wished to import into the spreadsheet. The data highlighted from the wordprocessor will appear where the cell pointer is located in the worksheet at the time of the import. Again, if there is any data in the worksheet that already exists in range where the **Range Import Numbers** is being written to, it will be deleted.

The format **Range Import Numbers** uses is somewhat different from the text may appear in the wordprocessor. The spreadsheet will take text that appears like this in the wordprocessor:

January	4500
February	5600
March - a really bad month!	500

and make it appear similar to this:

	A	B
1 January	4500	
2 February	5600	
3 March - a real	500	
4		

The spreadsheet considers any sentence or phrase that is separated only by a space to be a label. This would allow the label "Quarterly Sales for 1986" to be accepted and not have "1986" in a separate column. If more than one space exists between words or numbers, the

spreadsheet will check to see if the next entry should be a label or a number. If it is a number, it is entered in the column directly to the right. While you may have many spaces between labels and numbers in a document, the spreadsheet removes those spaces to place each label or number into adjoining columns.

Notice that A3 contained a long label which the spreadsheet chopped off, since the cell space was needed by the number to the right. This is entirely normal. In instances like that, it will be your responsibility to shorten the label, or increase the column width, so the entire label can be viewed.

Range Import Text (/RIT)

This selection allows you to do a **Mode Cut** or **Mode Copy** within the wordprocessor and place the text in a worksheet.

The spreadsheet treats each paragraph from the wordprocessor (a paragraph is text terminated by pressing the Return key) as a single cell. Multiple paragraphs are separated by blank cells automatically when the text is imported.

When this item is selected, a prompt will appear requesting the column width for the **Imported Text**. Use the mouse pointer, arrow keys or enter the column width from the keyboard. While you can enter a value of up to 240, the maximum number of columns that can be viewed at one time in the spreadsheet window is 78 columns.

If the column width is decreased, the spreadsheet will attempt to "borrow" space from the column to the right. If data exists in the column to the right, the text will be chopped off at the new column width. In cases such as this, you will probably wish to increase the column width so you can view the text properly.

RANGE XPORT

This menu item is selected whenever you wish to take data from a worksheet, place it into a document, or place it in another worksheet. **Range Xport** will only copy data, based on the defined data range. If

you wish the defined data range removed from the original worksheet, select **Range Erase**. **DO NOT** erase a data range until you have **Imported your Xported data to the new worksheet**. Otherwise, your **erased data will be lost!**

Range Xport Formulas (/RXF)

Use this option when you wish to take data from one worksheet and enter it directly into another, keeping the labels, numbers and formulas intact. You will be prompted for a data range.

After doing a **Range Xport Formulas**, the data can be imported into another worksheet by selecting **Project Open**, getting another worksheet and selecting **Range Import Formulas**. If you wish the exported data to be integrated with the cell references of the new worksheet, make sure the formulas you are exporting contain absolute addresses.

Range Xport Numbers (/RXN)

This last option is used when you wish to take a portion of your worksheet and have it entered in a document.

When selected, you will be prompted for a data range. After entering the data range, load the wordprocessor and select **Mode Paste** to insert the information from your worksheet into your document. This feature should prove invaluable when preparing any type of report containing financial information.

The **Range Xported** will be displayed exactly as it appears in the worksheet. This may mean adjusting cell widths within the spreadsheet before exporting the data.

When the spreadsheet exports the data, each row of data in the defined **Range Xport** data range is terminated in the document as if you had pressed the Return key. This allows the wordprocessor to treat each row as if it were a paragraph, or for columnar data, as if it were a line.

If you define a data range that is 78 columns wide and your document line-length is set to 65, please do not expect the information to appear properly. You will need your document line-length set to the same width as the data exported from the spreadsheet.

THE CALCULATE MENU

The *Calculate* menu contains commands that affect exactly what methods the spreadsheet uses to calculate the various elements of the worksheet. Calculating the various interrelations between cells and ranges in a spreadsheet is an important and complex operation. Being able to change these procedures adds flexibility to the spreadsheet.

You can also tell the spreadsheet when to calculate the worksheet, either when you enter each cell is entered or only when you press the F9 key. Your commands from the *Calculate* menu are:

Calculate Method

You use the sub-commands under *Method* to change when the spreadsheet recalculates the worksheet.

Calculate Method Manual (/CMM)

This sub-command tells the spreadsheet that the worksheet should be recalculated only when you tell it to. Instead, the program displays the message CALC in the upper right hand corner of the screen to inform you that the spreadsheet believes the worksheet inaccurate. Press F9 to recalculate.

When you are using a huge spreadsheet with many cells of data, the spreadsheet has to recalculate the entire worksheet each time you enter or edit a cell. This can create delays between cell entries. You can save time if you set recalculate to *Manual*, enter all your data, and then press F9 to recalculate.

Calculate Method Auto (/CMA)

This sub-command tells the spreadsheet to recalculate the entire worksheet every time you change a new value. This includes cell entry, editing a cell, or any type of global or range operation.

Calculate Order

This command controls the order in which the spreadsheet recalculates the worksheet. You should only change this when you have constructed a spreadsheet in which you need to explicitly control the recalculation order.

Calculate Order Natural (/CON)

The order in which a series of interrelations is physically distributed in a worksheet can make calculation awkward. For example, an item in the top of a spreadsheet model may refer to a value that is calculated at the lower portion of the worksheet. When the top part of the worksheet is calculated, it does not have the current value from the bottom of the sheet.

Natural CALC looks ahead to calculate all cells necessary to produce a result for a cell. For example, assume cell B6 contains a formula that calls for the products of formulas in cells G25 and J21. The spreadsheet calculates cells G25 and J21 before displaying the result of the formula in cell B6.

Calculate Order Rowwise (/COR)

Sometimes, having the worksheet calculated from top to bottom may be the only way to get accurate results. The Rowwise command calculates the worksheet from top to bottom, row by row.

Calculate Order Columnwise (/COC)

Sometimes, having the worksheet calculated from left to right across the columns is the only means to accurate results. This command forces the calculation to proceed in this manner.

Calculate Iteration (/CI)

Normally a worksheet needs to be calculated only once with each time it is recalculated. However, you can instruct the spreadsheet to recalculate between 1 and 50 times automatically. This is useful in cases where a spreadsheet is self-modifying (that is, one of the values produced by a calculation functions as a seed value for additional calculations, as in forecasting.)

Calculate Alert

This command informs the spreadsheet that it should signal when a spreadsheet recalculation is complete by producing an audible signal. You must either have your Amiga hooked up to amplifier or have a monitor capable of producing sound.

Calculate Alert Enable (/CAE)

This sub-command turns on an audible tone that signals you when a worksheet recalculation is complete.

Calculate Alert Disable (/CAD)

This sub-command turns off the audible tone option that signals you when recalculations are complete.

THE SORT MENU

The *Sort* menu selections are used to sort a range of data based on a column in either ascending or descending order. Blank cells, letters or formulas and numbers are all valid types of data. Selections are:

Sort Data-Range (/SD)

This option allows you to define the range of data that will be sorted.

Sort Primary-Key (/SP)

This selects the primary column to be sorted. After defining the column, a prompt will appear asking for the sort order. The options are Ascending or Descending order. If a *Primary-Key* is not defined, a requester with the message "Sort key out of range !!" will appear.

Sort Secondary-Key (/SS)

This selects the secondary column to be sorted. The secondary key will determine the order in which identical primary key cells will be sorted. A prompt will appear asking for the sort order. *Secondary-Keys* can be sorted in Ascending or Descending order.

Sort Go (/SG)

This starts the sort, based on the defined sort data range, primary and secondary keys.

Sort Reset (/SR)

This option clears the *Sort Data-Range*, *Primary* and *Secondary-Keys* under the Sort menu.

THE GRAPH MENU

The *Graph* menu contains all the commands needed for defining, storing and viewing graphs. Up to 4 graphs can be shown at one time.

Graph Load (/GL)

The *Graph Load* option brings up the File Requester which displays *.gdf* files. These are the graph definition files that allow you to store more than four graphs for a worksheet.

When the File Requester appears, you will see a list of files from the current default drive and directory. See Chapter 4, *File Requesters* for details on operation.

Graph Save (/GS)

Graph Save is the menu item to use to permanently store your graphs and graph definitions to disk. *Graph Save* will display the *Save File Requester* when selected.

When the File Requester appears, you will see a ghosted list of files from the current default drive and directory. See Chapter 4, *File Requesters* for details on operation.

Graph View (/GV)

This command has the spreadsheet draw the defined graph (or graphs, if using multiple graphs). After defining the graph(s) select this command. This command is duplicated by pressing F10.

Graph Number

This menu allows you to define and view the settings for up to four graphs. The graph number that is checkmarked will reflect the graph settings that are displayed in the *Graph* menu. The active graph window or the last active graph window will be reflected by the checkmarked menu item.

Graph Number 1 (/GN1)

Graph Number 2 (/GN2)

Graph Number 3 (/GN3)

Graph Number 4 (/GN4)

This option allows you to define the options for viewing the first, second, third and fourth graphs, respectively.

Graph Model

This menu selection determines how the data in your graph will be displayed. If you're not certain what these various graphs look like, take some time to display each one of them. You can define your data and keep changing the graph model until you approve of the way the graph shown represents your data.

Graph Model Pie (/GMP)

The *Pie* chart can display only one range and only about 10-15 elements. If you put more elements than this into the graph, it will display, but labels may overprint each other and become illegible. *Pie* charts DO use a second range (B-Range), but not to display. The B-Range is used to "explode" elements of the pie chart. Exploded elements are pieces of the pie that are separated from all other elements and they stand out from the rest of the elements in the graph. A non-zero value in the B-Range explodes the corresponding element in A-Range. A value of 0 keeps the piece joined with the pie. If the B-Range is not as large as the A-Range, elements not specified as exploding are assumed to be normal.

The *Pie* chart is also the only graph (other than *Z-Pie*) where element labels longer than 2 characters are practical, because element labels are printed horizontally in pie charts.

Graph Model Bar (/GMB)

The bar graph displays each element in the range as a bar. A scale will display along the left side of the graph using the lowest and highest values for each element range. The width and height of the bar will vary depending on the number of elements in the graph and the size of the graph. If you have a bar graph with many elements and the window is re-sized too small, some of the elements may not be

displayed, as they will become too thin to draw properly.

Graph Model Line (/GML)

The line graph uses a uninterrupted line for each element range. Select *Graph Options Symbols* to see where each line intersects with a group label, if one is used.

Graph Model X-Y (/GMX)

Each point in an X-Y graph must be made up of two data ranges and must have a minimum of two ranges for a point to appear on the graph. Additional ranges will be set against the A-Range. This effectively gives you up to 5 pairs of ranges totalled (A-Range paired with B-Range, A-Range paired with C-Range, A-Range paired with D-Range, etc.). The A-Range specifies the X-Axis and any additional ranges specify points on the scale.

Graph Model Stk-Bar (/GMS)

A stacked bar graph draws each bar as the total of all its elements and shows each element separately within the bar. This causes some people to think the graph scaling (the incremental points along the side of the graph) is incorrect, when it is not.

Graph Model Z-Pie (/GMZ)

Also known as *3d-Pie*. The 3 dimensional pie chart carries the same restrictions and rules as the normal pie chart.

Graph Model 3d-Bar (/GM3)

The 3 dimensional bar chart is unique since it's the only graph where one range could possibly obscure another when the graph is drawn. This means that 3d-Bar graphs are not necessarily suited to all forms of data. You can adjust the viewing angle with the Pitch/Yaw option under the *Graph Options* menu to improve the display in some cases. But there may be some instances when a *3d-Bar* graph is simply not proper.

Graph Data

The spreadsheet *Graphs* can contain up to six ranges per group with an unlimited number of groups and elements in the ranges. There are two

exceptions; the X-Y graph, with only three ranges per group, and the *Pie* graph, displaying only one range with an effective display range of only 10-15 elements.

To define each range in your graph, select the option with corresponds to the range you want to define. A prompt will appear at the top of the spreadsheet window asking you to enter the range coordinates. You may define the graph range as you would any other range in the spreadsheet.

This command is defining data ranges **ONLY**. Labels and all other ranges are defined with additional commands.

Graph Data A (/GDA)

Graph Data B (/GDB)

Graph Data C (/GDC)

Graph Data D (/GDD)

Graph Data E (/GDE)

Graph Data F (/GDF)

Defines data range A-F, respectively, for the current graph selected.

Graph Labels

An unclear graph makes no point and is of little value to you. *Labels* will serve to identify the data. The spreadsheet graphs offer three different kinds of labels:

Graph Labels Legend (/G2LL)

Legend labels are used to identify the ranges in a graph. If you define a graph with four different ranges and you want labels on the graph that identify each range, you can define any range of up to six cells as being the "legend range".

Graph Labels Group (/G2LG)

Group labels identify a "group" of ranges. When defining more than one range, you will have elements from each displayed next to each other. To identify each of these element groups, use group labels.

Graph Labels A (/G2LA)

Graph Labels B (/G2LB)

Graph Labels C (/G2LC)

Graph Labels D (/G2LD)

Graph Labels E (/G2LE)

Graph Labels F (/G2LF)

Defines the individual elements for *Graph Data A-F*, respectively. Element labels work well with pie charts, regardless of length. It is not recommended they exceed two characters with other graphs.

Graph Titles

The spreadsheet graphs permit you to define *Titles* for each graph window. *Titles* serve to make your graphs easier to understand. You can have one or two titles above the graph, and one on each axis (across the bottom, or along the side).

Graph Titles Clear (/GTC)

This option erases all the titles for the current graph; use it when you want to start over again.

Graph Titles First (/GTF)

The *First* title is located at the top of the window.

Graph Titles Second (/GTS)

The *Second* title is located at the top of the window, centered underneath the *First* title and smaller in size.

Graph Titles X-Axis (/GTX)

This title appears horizontally along the bottom of the graph.

Graph Titles Y-Axis (/GTY)

This title appears vertically along the left side of the graph.

Graph Titles Z-Axis (/GTZ)

This title works ONLY for 3d-Bar graphs and appears along the right hand side of the graph.

Graph Scale

The spreadsheet graphs normally create the scale for you; this is *Automatic* scaling and it is the default condition. Under most circumstances you will not need to change it. If you should have a special application for this feature, the spreadsheet is flexible enough to accommodate your needs.

Graph Scale Automatic (/G2SA)

The spreadsheet graphs automatically creates the scale.

Graph Scale Manual (/G2SM)

This option lets you specify the low and high points of the scale. You may find a need to control where the scale starts and stops to make a graph presentable. This may be needed when one element has a very low value, while the rest of the elements are much greater in value. By changing the *High-limit* of the scaling you force the smaller value to appear a bit more normally in the graph. Used in combination with the next two options, *Manual* scaling lets you do just that.

Graph Scale Low-Limit (/G2SL)

Specifies the starting point of a manual scale.

Graph Scale High-Limit (/G2SH)

Specifies the finishing point of a manual scale.

Graph Options

This menu contains a collection of miscellaneous options that affect the appearance of your graph. Much like labels and titles, they can be used to greatly enhance the picture you make with your graph.

Graph Options Clear (/GOC)

This option resets all the other options in this pop-out menu. Use this when you want to start over with defining your options.

Graph Options Lines (/GOL)

This option causes the *Line* and *X-Y* graphs to be drawn with lines connecting the points. This is the default setting.

Graph Options Symbols (/GOS)

This option causes the *Line* and *X-Y* graphs to be drawn with the symbol located at the X,Y coordinate that's specified by the data ranges selected. This is useful for special applications, such as displaying an X-Y graph. Select both *Lines* and *Symbols* to see each coordinate symbol connected with a line.

Graph Options X-Grid (/GOX)

This option turns on the grid lines for the X-Axis (which is going horizontally across the graph). These grid lines identify each element group and are especially useful with line graphs where it is difficult to see individual elements.

With the *X-Y* graph, the *X-Grid* has some additional meaning, since the X-Axis becomes another Y-Axis. Here, the *X-Grid* is also identifying points on a scale and not elements or element groups.

Graph Options Y-Grid (/GOY)

This option turns on the grid lines for the Y-Axis (which is going vertically up the graph). These grid lines identify each point on the scale and are useful to accurately determine the values of the various elements when viewing the graph.

Graph Options Z-Grid (/GOZ)

This option turns on the grid lines for the Z-Axis (which is going from left to right on the *3d-Bar* graph). These become the grid lines for the "floor" of the *3d-Bar* graph's box.

Graph Options Pitch/Yaw (/GOP)

This is used to specify a new viewing angle for the *3d-Bar* graph along its X-plane. This lets you "tip" the graph towards or away from you. A Pitch of 0 has you looking at the tops of the graph, and a Pitch of 90 is straight up and down. The default value is 40. These values are expressed in degrees of viewing angle. After entering the Pitch angle, you'll be prompted for the Yaw. This is similar to Pitch, except that it moves the graph on its Y-Axis, allowing you to "turn" the graph side to side. A Yaw of 0 has you looking straight into the sides of the bars, and a Yaw of 90 is looking at the front of the elements. The default value is 40.

Graph Clear

As you define graphs with the spreadsheet, there will be many times you'll either make a mistake or want to change something on a graph and need to erase some or all the current definitions for the selected graph. This menu lets you accomplish that.

Graph Clear All (/GCA)

Resets ALL the graph settings for the *Graph Number*. It gives you a "clean slate" to work with. Please use caution when selecting this option. Your graph definitions are gone for good when it is used.

Graph Clear Data-Ranges (/GCD)

Resets the data ranges *A* through *F*. This command erases all the data ranges as soon as you select it. Please exercise caution!

Graph Clear Element-Labels (/GCE)

Erases the element labels.

Graph Clear Legend-Labels (/GCL)

Erases the legend labels.

Graph Clear Group-Labels (/GCG)

Erases the group labels.

THE PRINT MENU

You can produce titles, page numbers, and multi-page reports, complete with headers and footers. The report can be sent directly to the printer or stored in a file. Your commands here are:

Print Range (/2PR)

This command is used to define the print range. When printing a report, you do not need to output the entire worksheet. When you select this command, the spreadsheet prompts you to:

Enter range to print:

Either type in the range or point to it in the normal manner.

The first cell address should be the top left side of a report, with the second address at the bottom right. If the specified range is larger than the paper, the spreadsheet creates a multiple-page printout.

Print Go

Use the sub-commands under Go to initiate printing. Be sure to have all necessary parameters defined before you use this command.

Print Go Printer (/2PGP)

This sub-command initiates the printout to the line printer device. All defined *Print* menu settings are used.

Print Go File (/2PGF)

This sub-command is identical to *Printer*, except that it sends the output to a disk file instead of the printer. When you select this command, the spreadsheet prompts you for the filename to store the data. Remember that all selected formatting commands are in effect, even to the file. You may want to make sure that *Print Options Use-Margins* is NOT checkmarked. To print a file directly to the printer (by-passing preferences completely), select PAR: as the filename to print to.

Print Margins

The *Margins* command has a series of sub-commands that allow you to specify the page-length, top, bottom, left, and right margins for your printout. When you select one of the sub-commands from the menu, the spreadsheet asks you to enter a number corresponding to characters for left and right margin and lines for top and bottom margins. The spreadsheet defaults are pre-set as follows:

Margin Defaults

Length	(1-100)	66
Left	(0-230)	6
Right	(0-230)	76
Top	(0-10)	3
Bottom	(0-10)	3

Print Margins Page-Length (/2PMP)

Use this sub-command to tell the spreadsheet how many lines will be printed on one page of paper. This assures proper placement of headers and footers and the proper skipping of perforations. When you select this command, you are prompted for the page length, with the last used value (default 66) shown as the default. Enter the changes and press the Return key. This value is stored, along with the rest of printer definitions, with each worksheet.

Print Margins Left (/2PML)

This sub-command sets the number of blank characters to be printed between the left side of the paper and the first column of the spreadsheet's printed output. This command is useful for indenting.

Print Margins Right (/2PMR)

This sub-command sets the number of characters printed on each line, from the left side of the paper. Therefore, the number of characters on each line is equal to the right margin minus the left margin.

Print Margins Top (/2PMT)

This sub-command sets the number of blank lines the spreadsheet prints between the top of the paper and any defined headers (or the start of the report, if there are no headers). The spreadsheet always leaves two blank lines between the header and the body of text.

Print Margins Bottom (/2PMB)

This sub-command sets the number of blank lines the spreadsheet prints between the bottom of the paper and any defined footers (or the end of the report, if there are no footers). The spreadsheet always leaves two blank lines between the footer and the body of text.

Print Borders

You can define row labels or column labels as borders for your printout. Use this command when the values your labels identify will generate more than one page.

Print Borders Columns (/2PBC)

This sub-command defines a column label, or labels, as titles to be

printed out with their corresponding values. When asked to define the range, enter the range of the labels you want. The labels of the specified columns are printed along the left margin of each page.

Print Borders Rows (/2PBR)

This sub-command defines a row label, or labels, as titles to be printed out along with their corresponding values. When asked to define the range, enter the range of the labels you want. The labels of the specified rows are printed at the top of each page.

Print Options

This menu allows you to set such options as headers, footers and a setup string. Other options are selected to determine what type of information is sent to the printer.

Print Options Clear (/2POC)

This sub-command tells the spreadsheet to clear all the other options found in this pop-out menu.

Print Options As-Displayed (/2POA)

When this sub-command is checkmarked, it tells the spreadsheet to print out the cells exactly as they appear on the screen, including any special styles. This is what you normally desire for printed output. Select *Print Options Clear* to remove the checkmark. When it is not selected, the cell formulas are printed one line at a time.

Print Options Use-Margins (/2POU)

When this sub-command is checkmarked, all the values under the *Print Margins* menu are used. This is normally desired for printed output. Select *Print Options Clear* to remove the checkmark. When it is not selected, no margins are printed or any special cell attributes.

Print Options Header (/2POH)

See *Footer*, below.

Print Options Footer (/2POF)

Just like a word processor, the spreadsheet lets you set a repeating header and footer to appear at the top and bottom of each page of a

report. There are three fields that automatically format to the left or right margin or center text. Any one or all three may be used. Some examples:

Left/Center/Right would cause:

Left Center Right

/Center/ yields the following results:

Center

//Right creates this result:

Right

You can incorporate the current date or page numbers using these codes: @ = today's date, # = page number (starting with 1)

For example, **@/Page #/the spreadsheet** yields:

01-JAN-80 Page 1 the spreadsheet

When you select either *Header* or *Footer*, the spreadsheet asks you to enter the corresponding string. These function in an identical manner, except that *Headers* are at the top of the page and *Footers* are at the bottom.

Print Options Setup (/2POS)

This lets you send a value or several values to your lineprinter for control purposes. Use commas to separate multiple values. When you select this command, you are prompted to:

Enter setup string:

Type in the setup string (in decimal code) and press the Return key. It is possible to take advantage of alternative type fonts and special printer functions if you know the control codes (see your printer

documentation). For Epson compatible printers, a "^O", no quotes, would place the printer into the condensed mode. When using the decimal value, precede the code with a percent sign. For instance, a %15 is equivalent to the "^O" shown above.

Print Graph (/2P2G)

This command will print hard copy of the current graph on your printer, assuming that it is capable of producing graphics and its graphics are supported by the AmigaDOS Preferences printer driver.

Graphs will print in color if the printer is capable of color printing and setup for color printing.

The size of the graph window will determine the size of the graph on the paper. You may wish to experiment a little with this, especially if you plan on mixing graphs and text together (fr use with letterhead, stationary, etc.)

Print Reset

Use the *Reset* sub-commands to clear the printer options. Since these options are stored with the worksheet, this is the only way, once they are defined, to print the worksheet without them.

Print Reset All (/2P2RA)

This sub-command completely clears out all defined print formatting.

Print Reset Borders (/2P2RB)

This sub-command cancels only the border settings (see *Borders*, above).

Print Reset Margins (/2P2RM)

This sub-command resets *Margins*, *PageLength*, and *Setup String* to their default values. (See *Margins*, *PageLength*, and *Setup String*.)

Print Reset Range (/2P2RR)

This cancels the defined print range. Remember, you must define another range before you can generate a printout.

NOTES

CHAPTER 22

DATABASE MANAGER REFERENCE

This section contains a breakdown of each Menu option, with a brief summary of what the option does.

THE PROJECT MENU

This pull-down menu contains functions that control the primary database files.

Project New (A-N)

The first command on the *Project* menu, *New*, lets you create a new database. **Nothing** is saved until you use the *Submit* command.

Project Open (A-O)

The next command on the *Project* menu is *Open*. This command is used to load your files. When the File Requester appears, you will see a list of files from the current default drive and directory. See Chapter 4, *File Requesters* for details on operation.

Project Close (A-C)

Project Close will properly close all files for the current database and allow you to open another database.

Project Save (A-S)

Project Save As

Project Save and *Project Save As* are the menu items to use to permanently store your files to disk. They differ slightly in operation.

Project Save will display the *Save* File Requester. Once a file has been saved with a filename, *Project Save* will save the changes without displaying the File Requester.

Project Save As will always display the *Save* File Requester when selected.

When the File Requester appears, you will see a ghosted list of files from the current default drive and directory. See Chapter 4, *File Requesters* for details on operation.

Project Change

Changes an existing database. Use this carefully. Some data may be lost when changing field datatypes, removing fields from the database or decreasing field widths.

Project Copy Design

Allows you to create a brand new database by taking the design of an open database and copying it with a new name. No records or any associated Indexes or Forms are copied - the database will be empty. If the database exists, you will be prompted to replace it.

Project Copy Selected

Copies the design of the current database and any records, using a search *Filter*, to a new database. If the database exists, you will be prompted to replace it. None of the Indexes or Forms are copied. To copy the selected database design and all records, set the active *Search Filter* to match all records.

Project Info

If a database is open, the name and path of the database will be displayed. The number of the records in the database and the size of each record will also appear. The last piece of information is the size of the disk file that the database occupies.

Project Works (A-W)

This menu item activates the **Platinum Works!** title bar. It is used to start another application or utility program.

Project Quit (A-Q)

This selection is used to quit the database application. A prompt appears to confirm your choice. If a database is open, it will be close and all records in memory will be written to disk.

INDEX MENU

Indexes are used to allow the sorting and quick search of records. This menu contains the functions necessary for opening, closing, creating and the deleting of Indexes. Only one Index may be open at a time.

Index New

Creates an Index for any valid fieldname. If an Index is open, you cannot create a new index for that same field. These should be created before any Reports that require fields to be sorted in a particular order are printed, unless you know for sure that every record Added to the database was entered with that Index open.

Index Open

A requester will display a list of existing Indexes. Use this option to open an existing Index. This option is ghosted if an Index is open.

Index Close

This option is ghosted unless an Index is open. Closes the open Index and un-ghosts Index Archive.

THE FORM MENU

This menu contains most of the functions necessary for maintaining your database.

Form Load

Displays a requester for loading custom Forms for data entry and retrieval.

Form Save

Displays a requester from which you can save a custom Form.

Form Change

Takes you to another screen where you are able to create your own custom data entry and retrieval screens. It's menus are:

THE FORM CHANGE SCREEN

Form Load

Displays a requester for loading custom Forms for data entry and retrieval.

Form Save

Displays a requester from which you can name and save a custom Form.

Form Reset

Creates a default listing of the database fieldnames. A requester will appear to confirm your choice. This erases whatever Form is displayed and allows you to start from scratch.

Form Resume

Aborts the Form Change mode and returns you to the main screen of the database manager.

Action Add

Allows you to modify the forms by including text and formulas and returning fields deleted from the Form.

Action Add Entry Area (A-E)

Allows you to Add a fieldname back into the Form that had been previously deleted. If the fieldname exists, a requester will display informing you that you cannot add that particular field because it exists.

Action Add Formula (A-F)

Creates a derived field that contains a formula used to perform mathematical operations on the database fields. A derived field may not access another derived field nor can the data in the field be saved as part of the database.

Action Add Text (A-T)

Allows the addition of text information to complement a Form. Can be used as supplemental labels when you need a larger label than the 10 characters allowed.

Action Change

Allows you to change the current definition of a fieldname. This includes creating an alternate label for an existing fieldname, or adjusting derived fields created by Action Add Formula.

Action Delete

This selection is used to delete fields from the Form and eliminate any unnecessary blank lines between fields.

Action Move

This is the default option when selecting Form Change. It allows you to move and align the fields anywhere within the 78 x 255 working area of the Form.

Form Mode Update (A-U)

Permits the editing, deleting and searching of active records. This will be the mode you will be in most of the time, unless you are Adding new records.

Form Mode Add (A-A)

This is the default mode the database manager uses when booting up. Allows you to add new records into the database. Use Right_Amiga S to store the record.

Form Mode Recall

This mode displays inactive records. A Right_Amiga R or Form Record Recall can be used to make the record active again. Inactive records take up valuable disk space and should be purged with the Pack command.

Form Mode Pack

Pack recovers lost disk space used by inactive records. Always make

a backup of your data before using this function. Once the database has been Packed, any inactive records are permanently deleted and cannot be recovered.

Form Record Erase (A-X)

Clears the current record from the screen. Does not delete it.

Form Record Undo (A-Q)

Undo's any changes made to the current record in the buffer. Until the record is saved, the changes made to it can be aborted by using this command.

Form Record Store (A-S)

Stores the current record displayed to disk.

Form Record Delete (A-D)

Makes the current record displayed inactive. Will not be physically deleted from the database until a Pack is performed.

Form Record Recall (A-R)

Recalls an inactive record displayed through **Form Mode Recall**.

Form Record Print (A-H)

Prints the displayed record with the current Form.

Form Field Erase (Ctrl-X)

Erases the field from the screen but does nothing to the record until it is stored again.

Form Field Undo (Ctrl-Q)

Undo's any changes made to the last written field. Changes won't be saved until the record is stored again.

THE SEARCH MENU

This menu contains the options necessary for finding particular records in a database. Used for both normal searches and reports.

Search Find Next (A-N)

Finds the next occurrence of a record matching the search criteria for the current Search Filter in Use. If no other matches are found, a requester will display.

Search Find Prev (A-P)

Find the previous occurrence of a record matching the search criteria for the current Search Filter in Use. If no other matches are found, a requester will display.

Search Browse (A-B)

This option is ghosted unless an Index is open. Searches the current Index for exact matches. Case does matter.

Search Define Filter 1 - 4

Allows the definition of up to 4 Search criteria. Only one Filter may be Used at a time. Can be used for both regular database searches and report generation.

Search Use Filter 1 - 4 (A-1) (A-2) (A-3) (A-4)

Used to select which defined Filter will be used. 1 - 4 are allowed. Use Filter # will be ghosted for undefined Filters.

THE TRANSFER MENU

The *Transfer* menu gives access to the AmigaDOS Clipboard device and allows you to import and export MailMerge files. MailMerge files are "printed" to a disk file or the Clipboard.

MailMerge format is defined as an ASCII text files with fields in sequential order, separated by commas, having carriage returns marking the end of a record. Any fields with internal commas must be

surrounded in quotes. For more examples, see Chapter 13A.

Transfer Import Clipboard

Adds records, in MailMerge format, to the open database from the Clipboard.

Transfer Import File

Adds records, in MailMerge format, to the open database from a file.

Transfer Export Clipboard

Prints records, in MailMerge format, from the open database to the Clipboard.

Transfer Export File

Prints records, in MailMerge format, from the open database to a disk file.

Transfer Sort Ascending

This option is ghosted unless an Index is open. When selected, the records are printed from the lowest value in the Index to the highest.

Transfer Sort Descending

This option is ghosted unless an Index is open. When selected, the records are printed from the highest value in the Index to the lowest.

Transfer Sort None

This option is ghosted unless an Index is open. This is the default selection for the Sort function. The records for the Report will not be printed in Index order.

Transfer Filter On

This option will be ghosted unless a Search Filter has been defined and is in Use. When ON, only records matching the search criteria of the Filter in Use will be printed.

Transfer Filter Off

This option will be ghosted unless a Search Filter has been defined and is in Use. OFF is the default selection for this function. Records will not be checked against search criteria before being printed.

THE PRINT MENU

This menu contains the functions necessary to generate reports to the screen, printer or disk file.

Print Preview

Sends the report output to your screen.

Print Go

Begins the process of printing to disk or printer. These are the two choices from the submenu. The current Form is used.

Print Go File

Prints a report to a disk file where it can be edited in a wordprocessor for printing later.

Print Go Printer

Prints the report on the printer selected in AmigaDOS Preferences.

Print Format Forms

Prints the Report using the current Form selected.

Print Format Design

Prints the layout of the Form, along with any formulas, plus a listing of fieldnames and corresponding labels.

Print Options Page-Length

Sets the number of lines per page. Default is 66 lines.

Print Options Top-Margin

Sets the number of blank lines that will print on the top of the page. The default is 6 lines.

Print Options Bottom-Margin

Sets the number of blank lines printed at the bottom of the page. The default is 6 lines.

Print Options Setup

Sends a setup string to your printer, bypassing preferences. A "^O" or "%15" would place an Epson compatible printer in condensed mode. The percent sign is used to enter the decimal value of a character. The "^O" is the ASCII equivalent of decimal 15.

Print Options Blanks

Selects the number of blank lines between Forms. A "-1" outputs a form feed between Forms, and a "0" leaves no blank lines. Two blank lines between Forms is the default.

Print Sort Ascending

This option is ghosted unless an Index is open. When selected, the records are printed from the lowest value in the Index to the highest.

Print Sort Descending

This option is ghosted unless an Index is open. When selected, the records are printed from the highest value in the Index to the lowest.

Print Sort None

This option is ghosted unless an Index is open. This is the default selection for the Sort function. The records for the Report will not be printed in Index order.

Print Filter On

This option will be ghosted unless a Search Filter has been defined and is in Use. When ON, only records matching the search criteria of the Filter in Use will be printed.

Print Filter Off

This option will be ghosted unless a Search Filter has been defined and is in Use. OFF is the default selection for this function. Records will not be checked against search criteria before being printed.

TECHNICAL SPECIFICATIONS

Maximum number of files open at a time	1
Maximum number of records	4.2 billion
Maximum number of fields	128
Maximum characters per Text field	254
Maximum number of numbers per Numeric field	16
Maximum number of fields for sorting	128
Maximum number of open indexes	1
Maximum number of search filters	4
Maximum characters for search criteria	254
Maximum characters for formulas	80

FORM AND REPORT DESIGN

Number of views, forms or layouts per file	Infinite
Set custom paper sizes for labels and forms	Preferences
Number of font styles	1

DATABASE OPERATIONS

Fast (indexed) search for data in fields	Yes
Logical search operators	And, Or, Not

CALCULATIONS

Number of math operators	5
Number of math functions	32
Number of date functions	5
Number of financial functions	3
Number of comparison and logical operators	8
Conditional logic in calculations	Yes
Date arithmetic	Yes
Summary calculations	Yes
Output formats	Report to Printer, File and Screen

The database manager integrates with dBASE file-compatible products and those that import ASCII delimited MailMerge files.

CHAPTER 23

TELECOMMUNICATIONS REFERENCE

This chapter reviews all the telecommunications program's menu items. Each item is listed in the order it appears in the pull-down menu. If an item can be selected by pressing a Right-Amiga key, the key combination appears next to the item.

THE PROJECT MENU

This pull-down menu contains functions that reflect the current Terminal file defaults.

Project New (A-N)

The first command on the *Project* menu, *New*, opens the terminal window.

Project Open (A-O)

The next command on the *Project* menu is *Open*. This command is used to load your files. When the File Requester appears, you will see a list of files from the current default drive and directory. See Chapter 4, *File Requesters* for details on operation.

Project Close

Project Close writes any changes to the Terminal file.

Project Save (A-S)

Project Save As

Project Save and *Project Save As* are the menu items to use to permanently store your files to disk. They differ slightly in operation.

Project Save will display the *Save File Requester*. Once a file has been saved with a filename, *Project Save* will save the changes without displaying the File Requester.

Project Save As will always display the *Save File Requester* when selected.

When the File Requester appears, you will see a ghosted list of files from the current default drive and directory. See Chapter 4, *File Requesters* for details on operation.

Project Phone Book

The Phone Book requester displays up to 40 phone numbers. Each entry stores the name of the service you are calling, the phone number, COM settings, 20 Macrokey definitions and an optional Script file path and name. See Chapter 12A for a complete description.

Project Call (A-P)

This item displays a requester with the message, **Enter phone entry(s)**. Insert an entry number and press Return.

If the entry does not have a phone number, or a Terminal file has not been loaded, then a Dialing window will not appear and you will be placed in the terminal mode.

You may enter several entry numbers by separating each number with a comma (.). This works exactly like the Queue option in the Phone Book.

Project Hangup (A-H)

Terminates the call in progress using the Hangup string entered under **Preferences Modem**. If the string isn't present, DTR is lowered.

Lowering DTR is somewhat faster than sending a Hangup string, but both methods just as well.

Project Clear Screen (A-X)

When selected, this command will erase the screen display.

Project Review (A-R)

This item reviews the last 8k (8192 characters) of terminal display. A window appears and displays the text from the end of the buffer.

Whenever you select **Project Review**, **Buffer View** or **Script View**, data can be imported and exported from the telecommunications program to any program that supports the clipboard device, such as the other programs in **THE WORKS! PLATINUM EDITION**.

When **Project Review** is selected, a window appears with a scroll bar on the right side of the window.

To move line by line through the buffer, press the up and down arrow keys. To page up and down, press the Shift up and down arrow keys. Press the Alt up arrow key to display the beginning of the buffer and Alt down arrow to view the end of the buffer.

The mouse may also be used to accomplish the same task. Move the mouse pointer to the scroll arrows and press the left mouse button, the buffer scrolls line by line. If you press the left mouse button when the mouse pointer is above or below the scroll bar, the buffer is paged in the direction of the mouse pointer. To quickly move from one end of the buffer to the other, or to move several pages at a time, move the mouse pointer to the scroll bar and press the left mouse button, the scroll bar changes color. While holding the left mouse button, move the scroll bar up or down. When you release the mouse button, that portion of the buffer remains highlighted.

Transferring data is accomplished by marking a portion of the buffer you are going to use and then selecting the buffer option.

You may highlight the buffer using the mouse pointer or the keyboard. To highlight an area with the mouse pointer, press and hold down the left mouse button. The mouse pointer turns into a paint roller and the line is highlighted. Move the mouse pointer to cover the range. If the range is larger than the window, the buffer scrolls. When the range is highlighted, release the left mouse button. Press the Esc key to cancel the highlighted range.

To mark a range using the keyboard, find the first line of the range and press the Left-Amiga A anchor key. Use the arrow and Shift arrow keys to highlight the range and press Return to complete the range.

Press the Esc key to cancel the highlighted range.

When the range is highlighted, select one of the following:

- Copy (A-C)** Copies the highlighted text from the buffer into the clipboard.
- Cut (A-X)** Removes the highlighted text from the buffer and places it in the clipboard.
- Paste (A-V)** Inserts data from the clipboard into the buffer. If there is not enough free space in the buffer, an **Out of memory !!** message is displayed.
- Print (A-T)** Outputs the highlighted text to the printer.
- Quit** Removes the buffer window and returns to the terminal mode.

Only one range may be entered into the clipboard at a time. The next highlighted range, whether you select **View**, **Copy** or **Cut**, overwrites the existing data in the clipboard. This data is stored on disk, so you can exit the telecommunications program, load the wordprocessor or the spreadsheet and insert the data -- with nothing lost.

Inserting data is done by highlighting a range from another program, anchoring a line in the telecommunications program by pressing Left-Amiga A and selecting **View Paste**.

When the line length of the inserted data is greater than the telecommunications program's window size, the text is wrapped around. Please do not confuse this with word wrap. If the text in the clipboard is boldfaced, underlined or italicized, the control codes used for the special characters may appear.

Project Printer

Displays a pop-out menu to turn the printer on and off.

Project Printer Off

This is the default. When selected, the screen display is not sent to the printer.

Project Printer On

Sends all screen display to the printer. If you're calling a system that sends escape codes for colors or graphic characters, see **Setup Tables Printer**. Some printers may misinterpret escape codes.

Project Info

This item lists several important the telecommunications program settings.

The Window size option shows the number of displayable lines and columns calculated from the *Preferences* settings.

The *Project Printer* and File Protocol selections are shown along with the current buffer size and the number of bytes free in the buffer.

If a Script file is loaded, a YES appears. Other settings include *Setup Duplex*, *Echo* and *CR+LF*.

Select the OK gadget to cancel the requester.

Project Works (A-W)

This menu item activates the **Platinum Works!** title bar. It is used to start another application or utility program.

Project Quit (A-Q)

This selection is used to quit the telecommunications program. A prompt appears to confirm your choice. If the OK gadget is selected, the telecommunications program hangs up the modem and closes the capture buffer.

THE PREFERENCES MENU

Refer to "PREFERENCES SETTINGS" in Chapter 12B for more information on settings for specific applications.

Preferences Modem (A-M)

Displays a requester that contains modem information. Refer to the section titled "MODEM SETTINGS" in Chapter 12A for more information.

Preferences Chat

Chat is a means of communicating with another user through the keyboard. You type a message to the user and they respond.

This option displays a pop-out menu to open or close a chat window at the bottom of the display. You enter a message in this window and press the Return key. The text is then sent in one uninterrupted string to the terminal.

A chat window is invaluable on services where a great number of users are chatting simultaneously. With that much activity, trying to keep track of what you're typing is almost impossible.

The telecommunications program's chat window allows you to enter a message and edit your text until the Return key is pressed or 240 characters are entered.

Press the Backspace key to erase characters or the Esc key or Ctrl-X to delete the contents of the chat window.

Preferences Chat Off

This is the default. When **Window Chat On** is selected, this item removes the chat window and returns the telecommunications program to a full-size terminal window. You may also select the close window gadget on the chat window to accomplish the same thing.

Preferences Chat On (Right-Amiga C)

Opens a chat window. Enter your message and press the Return key to send the information to the terminal. Up to 240 characters are permitted.

Preferences Font

Displays a pop-out menu to select a font size for the terminal. Each font displays characters on the screen differently.

The telecommunications program supports 5 different fonts. The font selected goes a long way in determining how many columns and lines can be displayed in the window. The first number is the width and determines the number of columns. A lower number would allow more columns. The second number is the height and determines the number of rows. A lower number would allow more rows.

To have the telecommunications program access these fonts, you must have booted your Amiga with your the **WORKS! PLATINUM EDITION** Workbench disk. To copy the fonts from the master disk to another disk, refer to the section titled "WINDOW SETTINGS" in Chapter 12B for a list of the files needed.

Preferences Font 5x8

Select this font to display from 126 to 132 columns with IBM or VT100 graphics.

Preferences Font 8x8

Select this font to display from 79 to 82 columns with IBM or VT100 graphics.

Preferences Font 10x9

This font displays from 63 to 66 columns. No IBM or VT100 graphics can be displayed.

Preferences Font 8x11

This font displays from 79 to 82 columns with no IBM or VT100 graphics.

Preferences Font 8x8t

This font displays from 79 to 82 columns with no IBM or VT100 graphics.

Preferences Leading

When using an interlaced screen, the spacing between lines of text can cause difficult legibility. Use the *Leading* requester to increase the spacing between lines. The default value is 0. The maximum value is 36 points.

Preferences Title

Displays a pop-out menu to turn the title bar on and off.

Preferences Title Off

Removes the title bar. Select this to add another displayable line to the terminal window. Press the right mouse button to display the telecommunications program's menu options.

Preferences Title On

The default option to have the title bar displayed.

Preferences Border

This selection displays a pop-out menu to toggle the window border on and off.

Preferences Border Off

Select this to remove the border and add an extra displayed column to the terminal window. When this is selected, the telecommunications program's windows may not be re-sized.

Preferences Border On

This is the default option to let you re-size the telecommunications program's windows.

Preferences Foreground

Displays (up to) eight boxes from which you can choose the foreground color. These are the colors selected in **Platinum Works! Project Preferences**.

Preferences Background

Displays (up to) eight boxes from which you can choose the background color. These are the colors selected in **Platinum Works! Project Preferences**.

Preferences Clock

The telecommunications program displays a pop-out menu to control the multi-function clock on the title bar.

Preferences Clock Time

This is the default selection. The current system time is displayed and the clock updated once a minute.

Preferences Clock Elapsed

When this option is selected, the clock becomes an elapsed timer. The counter is automatically reset to zero when carrier is detected. This allows you to easily keep track of the time you spend on a remote system. Select the menu item again to reset the timer.

Preferences Beep

Select status of audible warnings.

Preferences Beep Off

This choice will silence the alerts.

Preferences Beep On

This selection is the default. It sounds a chime when the connection is made and when a successful download has been completed. It will not interfere with Script commands nor with received Bell signals.

THE FILE MENU

This menu contains all the options used directly with file transfers. For examples of file transfers, refer to Chapters 12A and 12B.

File Receive (A-D)

Select this option to receive a file from another system. The requester, **Enter file to receive**, appears. Enter the filename and

click OK. The file is saved on the current disk unless you specify an alternate drive path with the *File Path* command.

File Send (A-U)

This option sends a file from your computer to another. Select a file and click the Send gadget to start the file transfer.

When using a protocol that supports batch files, you can enter an AmigaDOS wildmask in the Selection input area. This lets you upload several files at a time. Make sure the other system is capable of receiving batch files before trying this.

File Path

This option displays the default drive path for files received through the *File Receive* command. Any legal drive/path or volume/path may be entered.

File Protocol

This option displays a pop-out menu with a list of file transfer protocols. Transfer protocols send data in blocks. Each protocol transfers data differently. **Always make sure the telecommunications program and the remote system are using the same transfer protocol!**

The most popular protocols, listed in ascending order (roughly the same order as their accuracy [error-detection] and transfer speed) are: Kermit, Xmodem, Xmodem-CRC, WXXmodem, Ymodem-Batch, Ymodem, Zmodem and Sadie.

All protocols use some form of error-checking. Error-checking is a feature whereby the file transfer protocol tries to monitor the transfer and compensate for poor line quality or spurious line noise which can scramble data. When an error is detected the receiving system asks the host system to re-send the block.

File Protocol Xmodem

This is the protocol originally written by Ward Christensen and in use by almost every type of personal computer. It is the same protocol as **Xmodem-CRC**, only it uses Checksum error correction instead of CRC,

which is not as reliable.

File Protocol Xmodem-CRC

This has long been a standard with its outstanding error-detection. It's biggest drawback is it transfers data in 128 byte blocks. Following the protocol description, the host and terminal switch communications protocol from 7E1 to 8N1 when transferring files. As 99% of the commercial and public domain telecommunications programs follow this standard, your users should have no problems. Micro-Systems Software has been using this protocol for many years without problems. With the exception of Kermit, all the protocols used in **PLATINUM WORKS!** switch communications protocol the same as Xmodem-CRC.

File Protocol WXmodem

WXmodem (Windowing Xmodem) is based on the Xmodem protocol. It has been modified to improve transmission speed when using packet switching networks.

File Protocol Ymodem

This is basically Xmodem-CRC with 1024 byte blocks. The advantage is obvious: more data is sent per block, thus less blocks to error-check which is time consuming. The only problem is when line quality is poor, 128 byte blocks take less time to re-send.

File Protocol Ymodem-Batch

This is the same protocol as **Ymodem**, only the filename is not entered at the receiving end of the system. Ymodem-Batch sends the filename along with the filesize. The receiving system only selects file receive.

File Protocol Zmodem

Currently, this is the fastest file transfer protocol in the public domain. A file is normally sent in 1024 byte blocks. This value changes based on system performance and is automatically handled by Zmodem.

The reason for Zmodem's outstanding performance is the way it detects errors. The other protocols send one block of information and wait until the remote system receives it, acknowledges the block and

then sends a command to continue with the next block.

Imagine a series of stop signs at each city block where you must constantly stop and start. While you eventually get there, it's slow going.

Zmodem uses continuous data-streaming; it does not wait for an OK from the remote system before sending the next block. In effect, Zmodem ignores the stop signs until caught (an error is detected). When an error is detected, the receiving system sends a request to the host to re-send the data from where the error occurred. While several kilobytes of data may be lost due to the delay in receiving the error message, the overall transfer rate is far superior and outweighs an occasional bad block.

This protocol proves useful when calling through a packet network. Packet networks normally experience long delays using the traditional file transfer protocols, since it takes several seconds before an acknowledgment is received from the remote system. In the same time, Zmodem can send two or more blocks of data.

Always make sure your users initiate the file transfer at the host's end first, and then complete the transfer sequence at your end.

File Protocol B-Protocol

File Protocol Quick-B

These protocols are only used with CompuServe, a popular commercial service. *File Receive* and *File Send* are not used. When receiving or sending a file, you are prompted by the remote system for the name of the file. B-Protocol and Quick-B permit drive and pathnames to store or send the file to another drive. They automatically switch to 8N1 when transferring binary files.

File Protocol Kermit

This is the standard transfer protocol used by mainframes for many years now. **PLATINUM WORKS!** uses the standard implementation of Kermit. If calling at 7E1 and downloading a binary file, binary quoting is used to transfer the file. This normally increases the

transfer time two-fold. Calling at 8N1 provides optimum speed with Kermit. This is the setting to use if at all possible.

Since several implementations of Kermit are currently in use, the default values are listed for **PLATINUM WORKS! Kermit**:

Packet Length (bytes)	94
Pad Length (bytes)	0
Pad Character	000
Time-out (secs)	10
EOL Character (octal)	015
Quoting Character (octal)	043
Start of Packet (octal)	001

Kermit automatically sends the filename along with the filesize. The receiving system need only select file receive, the host and Kermit handles the rest.

File Protocol Sadie

This protocol, created by Micro-Systems Software, allows a simultaneous 2-way chat mode and bi-directional file transfer capabilities. Refer to Chapter 15B for a complete description.

File Type

This option displays a pop-out menu to let the telecommunications-program know what type of file you are transferring.

File Type Text

This option converts end of line characters in text files.

File Type Binary

This is the default option you will use most often except in the instances listed under *File Type Text*.

File Auto-Chop

Displays a pop-out menu with two options for the processing of downloaded files.

Most of the protocols in the telecommunications program add extra bytes to the end of the file. This rounds off the file size to an even multiple of bytes and is based on the block size the protocol uses to transmit files. This is known as padding and prevents executable programs from loading. Auto-chopping is a process where the extra padding is removed from the file before it is saved to disk. If you are using the archival utility, ARC, this option is unimportant.

File Auto-Chop Off

Turns off auto-chop. There may be some instances when a downloaded file has padding removed which should not have been. The public domain program FIXOBJ can be used to process these executable files.

File Auto-Chop On

This is the default. Padding added by a transfer protocol is removed.

File EOL-Conv

This options displays a pop-out menu for the processing of text files.

Text files contain an end-of-line (EOL) character to indicate the end of a line or paragraph. AmigaDOS uses a LF (line feed) only as its EOL character. Some computers use a CR+LF (carriage return plus line feed), which can make viewing a text file created on another computer very difficult.

The telecommunications program supports EOL character translation. *File Type Text* must be selected and *EOL-Conv On*.

If both computers use the same EOL character, no conversion is necessary.

File EOL-Conv Off

This is the default. No EOL character conversion occurs.

File EOL-Conv On

When this option is selected with *File Type Text*, EOL characters are translated as follows:

With *File Receive* selected, the telecommunications program converts a CR+LF to a LF only.

With *File Send* selected, the telecommunications program converts a LF only to a CR+LF.

File Icon

This displays a pop-out menu that has the telecommunications program create a project icon for your downloaded files. If you use Workbench, you know that files can be copied easily by dragging a project icon from one disk to another.

File Icon Off

Does not create project icons for downloaded files.

File Icon On

This is the default and creates a project icon for each file you download.

THE BUFFER MENU

This menu contains all the options related to the capture buffer. A capture buffer allows you to save any text that appears in the window to a disk file. Optionally, you can send text from the capture buffer to a remote system.

Buffer Load (A-L)

This command is used to load your files into the capture buffer. When the File Requester appears, you will see a list of files from the current default drive and directory. See Chapter 4, *File Requesters* for details on operation.

Buffer Save

Buffer Save is the menu item to use to permanently store your files to disk. *Buffer Save* will display the File Requester. Once a file has been saved with a filename, *Buffer Save* will save the changes without displaying the File Requester.

When the File Requester appears, you will see a ghosted list of files from the current default drive and directory. See Chapter 4, *File Requesters* for details on operation.

Buffer View (A-V)

Displays a window to view the contents of the capture buffer. See *Project Review* for information on the uses of this option.

Buffer Open (A-B)

Opens a capture buffer. A requester appears to prompt you for the buffer's window size; the default is 16k. After the buffer size is entered, a filename prompt appears.

When a filename is entered, the information in the buffer is stored to disk each time the buffer is full or when the buffer is closed. Precede the filename with a drive or volume name to store the buffer on another disk.

If the filename entered already exists, the telecommunications program adds to the file.

If a filename is not entered, the buffer stores as much information as the window size allows. When the buffer is full, the telecommunications program removes the oldest text to make room for the newest.

Buffer Close (A-C)

Closes the open buffer. As long as *Buffer Clear* is not selected, *Buffer Open* can be used to capture more information.

Buffer Clear

Clears the data from the buffer window. If this is selected when no data is in the buffer, the buffer is closed.

Buffer Send

This displays a pop-out menu with options to send text in a capture buffer to a remote system. Use this to send pre-written messages to an electronic mail service or other system.

Before sending a buffer, make sure the file has been loaded through *Buffer Load*. Only text files may be sent in this way, not binary.

Buffer Send Stop

Halts buffer output to the remote system.

Buffer Send Go

Sends the text from the capture buffer to the remote system as if you were typing it.

Buffer Send C-Delay

Used to insert a delay between each character sent. The capture buffer works properly with systems that support XON/XOFF handshaking. For systems that do not, use a character or line delay. The delay value is entered in milliseconds, 0-255 is supported.

Buffer Send L-Delay

Some systems can accept entire lines of text at full speed, but require a delay at the end of each line to allow for scrolling or something similar. A delay value from 0-255 is supported and occurs whenever a carriage return or line feed is sent.

Buffer Send Prompt

The telecommunications program can be configured to send a line from the capture buffer only when a specific prompt from the remote system appears.

Select the menu item and enter the prompt character or string. After *Buffer Send Go* is selected, the telecommunications program sends the first line and waits for the prompt string. Each time the prompt string appears, a line of text from the capture buffer is sent until the buffer is empty.

THE SCRIPT MENU

This menu displays options related to the execution and implementation of Script files. Select *Script Load* to load a Script file stored on disk. See Chapter 15 for a list of Script commands and examples.

Script Load

Displays a File requester from which you can select a script to be loaded into the Script buffer. See Chapter 4, *File Requesters* for details on operation.

Script Save

Displays a File requester from which you can save a Script from the Script buffer. This is useful when using the Learn mode to create a Script. See Chapter 4, *File Requesters* for details on operation.

Script View (A-X)

Displays a window to view the contents of the Script buffer. See *Project Review* for information on the uses of this option.

Script Stop

Halts Script execution at the current Script command.

Script Go (A-G)

Executes the Script from the beginning.

Script Resume

Continues execution of the Script from where *Script Stop* was used.

Script Clear

Erases the Script from memory.

THE SETUP MENU

This menu contains items to configure macrokeys, terminal types and other various settings.

Setup MKeys (A-K)

Re-defines the 10 Function and 10 Shift-Function keys to have the telecommunications program send as many as 64 characters by pressing a single key. See the section titled "MACROKEYS" in Chapter 12B for more information.

Setup Width

This option reformats the terminal display in a primitive form of word wrap. The default is 0, which turns the option off.

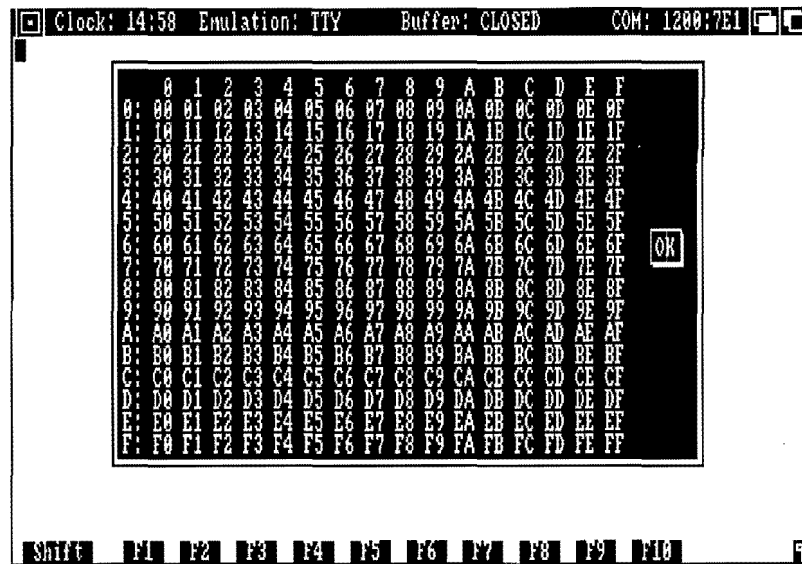
If you enter a value greater than 0, any incoming carriage returns are translated as spaces. When the telecommunications program reaches the column specified in *Setup Width*, the next space received is converted to a carriage return.

It is a good idea to enter a value 5-10 characters less than the maximum number of columns that can be displayed.

Setup Tables

Displays a pop-out menu to select one of seven translation tables. Translation tables allow the telecommunications program to convert a one byte value to another. This permits the telecommunications program to filter or alter characters which can cause undesirable effects.

When a translation table is selected, a large requester appears with hexadecimal values from 00-FF. Each value is represented as two digits.



To change a value, move the mouse pointer to the digit for the value you wish to change and press the left mouse button.

The digit increases by one and changes color to signify that a change in the byte's value has occurred. For example, to change a capital A to a B, move the mouse pointer to the number 41 and press the left mouse button when the mouse pointer is on the 1. The 1 has become a 2. Now the letter A is translated to a B.

The OK gadget accepts the changes and returns you to the terminal mode. Select NEW to erase your changes and display the default values.

The Table changed determines when characters are translated. You should be aware that data transmitted using a file transfer protocol is not affected by changes to the translation tables.

Setup Tables Display

This table alters characters before they are displayed in the terminal window. One use for this table is to change the Amiga's non-

destructive backspace so it is destructive. You'll notice when you press the Backspace key that characters are not deleted. Change byte 08 [BS] to 7F [DEL] to have the telecommunications program erase the characters when Backspace is pressed.

Setup Tables Printer

This table alters characters before they are sent to the printer. If you normally call a system which sends escape codes and you often send the output to your printer, change byte 1B [ESC] to 00 [NUL]. Now the escape codes will not interfere with the way your printer operates.

Setup Tables Keyboard

This tables alter characters from the keyboard. If you need to send a character that does not appear on the keyboard, you may modify an existing character.

All keyboard and macrokey output is filtered in this way.

Setup Tables From-Buffer

This table alters characters as they are sent from the capture buffer. The changes in this table only take effect when *Buffer Send Go* is selected.

Setup Tables To-Buffer

This table alters characters as they are sent to the capture buffer. The changes in this table only take effect when *Buffer Open* is selected.

Setup Tables In-Serial

This table alters characters as they are received by the computer. The changes in this table take precedence over any others. If a value is changed here, no other table needs to be changed.

Setup Tables Out-Serial

This table alters characters as they are sent by the computer. The changes in this table take precedence over any others. If a value is changed here, no other table needs to be changed.

Setup Emulation

Displays a pop-out menu to select the type of terminal emulation you wish the telecommunications program to use.

Setup Emulation VT-100

Setup Emulation VT-102

Setup Emulation VT-52

The above items are DEC terminal emulations. Settings on the **PLATINUM WORKS! Preferences** menu determine the number of columns, colors and whether graphics can be displayed.

The telecommunications program supports 8 programmable function keys. Press a Left-Amiga F1 for PF1. Full keypad emulation is supported, with the HELP key substituting as the keypad's comma.

Changing the value 0E to 00 in the *Setup Tables Display* will prevent the switching-on of the alternate character set when using VT-100.

Setup Emulation TEK-4010

This terminal is popular with some universities.

Setup Emulation TTY

This is the default terminal emulation, also known as a "dumb terminal." Depending on your *Preferences Font* and *Preferences Color* settings, (up to) 8 colors and IBM graphics can be displayed.

Setup Duplex

Displays a pop-out menu with options to configure how the telecommunications program communicates with a remote system.

Setup Duplex Full

This is the default option and the setting most systems use. When typing while in full duplex, characters are echoed back from the remote system, a good way to know the other system is receiving your data.

Setup Duplex Half

This option echoes back locally what is typed. See the section "ADVANCED FILE TRANSFERS" in Chapter 12B for uses of half duplex.

Setup Echo

Displays a pop-out menu with options to turn echoing on and off.

Setup Echo Off

This is the default and will be used when both systems are at full duplex.

Setup Echo On

If you're calling a system that is in full duplex and you're at half duplex, select this option so the remote system can see what is sent to you. **Do not select this when both systems are at full duplex, an endless loop will appear!**

Setup CR+LF

Displays a pop-out menu with options on how to handle line feeds.

AmigaDOS's EOL character is a line feed (LF). When this code is sent, the cursor moves down and to the beginning of the next line. This is not the normal function of a line feed and most systems send CR+LF's to accomplish the same thing.

Setup CR+LF Off

No translation of CR+LF's. If this option is selected and the remote system is transmitting CR+LF's, lines will appear double-spaced on the telecommunications program's display.

Setup CR+LF On

This is the default to have the telecommunications program translate incoming CR+LF's. Regardless of whether the remote system is sending LF's only or CR+LF's, the telecommunications program treats both in the same way. This results in a normal display of text.

Setup Flow

This option displays a pop-out menu to turn flow control on and off. Flow control is used to prevent data being lost when one system's display is faster than the other, or a pause is needed while a computer writes to disk.

Flow is also known and XON/XOFF handshaking.

Setup Flow Software

This is the default to recognize XON/XOFF through the telecommunications software.

Setup Flow Hardware

This option uses pins 5 and 6 (CTS and DSR) for flow control. Some modems operate more efficiently using this type of flow control. Refer to your modem manual for more information.

Setup Flow None

Select this when the remote system does not support XON/XOFF. Otherwise a control code may be misinterpreted and pause your system indefinitely.

THE COM MENU

This menu contains items related to the communications device.

COM Baud

Select one of the items below for the number of bits per second you wish data to be transferred. Don't select a baud rate your modem is not capable of transmitting, nor the remote system is capable of receiving. The default baud rate is 1200.

The available rates are:

300
600
1200
2400
4800
9600
19200

COM Word

Displays a pop-out menu to select the number of bits sent to represent a single transmitted character.

COM Word 7-Bit

This is the default setting. 7 bits are sent to represent a single character.

COM Word 8-Bit

8 bits are sent to represent a single character. Select this when the remote system displays colors and graphics characters.

COM Parity

Displays a pop-out menu to choose the type of bit used for error checking.

COM Parity None

No parity bit is used. Select this when the word length is 8. Do not confuse this with the error checking used by file transfer protocols.

COM Parity Even

This is the default and is used when a 7 bit word length is selected.

COM Parity Odd

Select this when the remote system requests odd parity.

COM Parity Mark

Can be used to send 7 bits when the remote system requires 8. The parity bit is always set to 1 and is sometimes called bit forcing.

COM Parity Space

Can be used to send 7 bits when the remote system requires 8. The parity bit is always set to 0 and is sometimes called bit trimming.

COM Stops

Displays a pop-out menu to select the number of bits used to represent the end of a word.

COM Stops 1-Bit

This is the default and most common selection.

COM Stops 2-Bit

Very few systems will require 2 stop bits.

ERROR MESSAGES

The following is a list of error messages along with instances when they may appear:

Out of memory: You may not have enough RAM, or the buffer is full.

Can't open file: The capture buffer could not open the file requested.

Can't close file: An error occurred when the telecommunications program tried to close the capture buffer.

Can't write file: Could not store the file to disk.

Capture to file in progress: This happens when you select **Buffer Send Go** while you are receiving data in an open capture buffer.

File I/O error: This generally occurs when there's a file lock present or not enough memory to load the file.

No matching files: The file(s) specified could not be located when **File Send** was selected.

Transfer unsuccessful: File transfer was aborted for some reason.

Script storage full: You have reached the 8k maximum for Script files. Split the Script file into two parts and use the **DO** command.

Printer not available: Another program is using the printer.

CHAPTER 24

MATHEMATICAL FUNCTIONS

Beside the commands in the menu structures, **THE WORKS! PLATINUM EDITION** spreadsheet and database manager have many powerful built-in functions and capabilities. Since they are prefixed with the "@" symbol, we call them "at" functions.

SPECIAL FORMULA FUNCTIONS (@FUNCTIONS)

You can do many sophisticated mathematical functions within the context of a spreadsheet formula or a database formula field using the following @functions (pronounced "at functions"). These built-in formulas make complex and sophisticated business and mathematical modeling easy to use.

There is one @function unique to the database manager: @INSTR, a string function. It can only be entered in the search filter.

@ABS(x) Absolute Value of (x)

@ABS(3.44) = 3.44

@ABS(-4.7) = 4.7

@ABS(A1) = Absolute Value of the contents in cell A1

@ACOS(x) Arc Cosine of (x)

Where the angle in radians whose cosine is (x). If (x) is not between -1 and +1, the value is ERROR. The value of the ACOS function is always between 0 and PI.

@ACOS(-1) = 3.141592 (radians)

@ACOS(A1) = Arc Cosine of the contents in cell A1

@ASIN(x) Arc Sine of (x)

The function yields the Arc Sine of (x), the angle in radians whose sine is (x). If the value of (x) is not between -1 and +1, the value is ERROR. The value of the function always falls between $-\pi/2$ and $+\pi/2$.

@ASIN(-1) = -1.570796 (radians)

@ASIN(A1) = Arc Sine of the contents in cell A1

@ATAN(x) Arc Tangent (2 quadrant) of (x)

The value of Arc Tangent (x), the angle in radians whose tangent is (x). Value falls between $-\pi/2$ and $+\pi/2$.

@ATAN(-3) = -1.249045 (radians)

@ATAN(A1) = Arc Tangent of the contents in cell A1

@ATAN2(y,x) Arc Tangent (4 quadrant) of (y,x)

The value of Arc Tangent of (y/x), the angle in radians whose tangent is (y/x). The signs of (y) and (x) are considered separately producing values for all 4 quadrants, between $-\pi$ and π . If (x) = (y) = 0, then the value is ERROR.

@ATAN2(3,2) = 0.982793 (radians)

@ATAN2(A1,B1) = Arc Tangent of the result from the contents in cell B1 divided by the contents in cell A1.

@AVG(list) Averages the values of all items within a list.

The system averages all items in a list by totaling the values and dividing them by the number of items.

	A		B		C
1	23.1				
2	0.34				
3	100.06				
4					

@AVG(A1..A3) = 41.16666

Since this is a list function, any number of individual items or range of items can be entered, as long as each is separated by a comma. For example:

@AVG(A1..A3,B5,NAMED-RANGE,E5..E8) is perfectly acceptable.

@CHOOSE(a,list) Select argument value

You can perform short table lookups with the @CHOOSE function. @CHOOSE selects and returns an argument based upon the first argument. The first argument, (a), is turned into an integer. If this integer is less than 0 or greater than (n), the function yields ERROR. Otherwise, the value of the function is the appropriate item in the list.

@CHOOSE(3,23,11,6.8,1.17) = 1.17

Since this is a list function, any number of individual items or range of items can be entered, as long as each is separated by a comma. For example:

@CHOOSE(5,A1..A3,B5,NAMED-RANGE,E5..E8) is perfectly acceptable.

@COS(x) Cosine

The Cosine of (x), where (x) is an angle in radians.

@COS(-3) = -0.989992

@COS(A1) = Cosine of the cell A1

@COUNT(list) Counts the number of items within a list.

The @COUNT function returns the number of items in a range. Single value arguments are a number or cell address, each separated by a comma and counted as one each.

If a range is specified, the value returned is the number of cells that contain a value. If single cell addresses are specified, the result will be the number of cell address contained in the list.

I	A		B		C
1	23.1		456.9		
2	0.34				
3	100.06		1122.33		
4					

@COUNT(A1..A3) = 3

@COUNT(A1..B3) = 5

@COUNT(B2) = 1

Since this is a list function, any number of individual items or range of items can be entered, as long as each is separated by a comma. For example:

@COUNT(A1..A3,B5,NAMED-RANGE,E5..E8) is perfectly acceptable.

@DATE(YY,MM,DD) Date expressed serially (1-1-1900 = 1)

The @DATE function permits date arithmetic supporting leap years. The date 1-1-1900 has been assigned the number 1, 1-2- 1900 is 2, and so forth. Counting serially for the next 100 years, including 25 leap years, yields 12-31-99 = 36525. The @DATE function works only between 12-31-1899 = 0 and 12-31- 2099 = 73049. You can display a serial date in normal date format using the Global format commands within the Worksheet menu.

@DATE(48,11,8) = 17844

@DAY(date) Day number

@DAY converts a serial date and extracts day of the month (See @Date, above).

@DAY(17844) = 8

@DEG(x) Degree to Radian

Converts degrees to radians.

@ERR The value ERROR

The value of @ERR is ERROR. This function is useful in creating forced errors in lookup tables.

@EXP(x) Exponential notation

(e) raised to the (x) power.

@EXP(1.02) = 2.773194

@EXP(A1) = (e) raised to the power of the contents in cell A1

@FALSE The value 0 (False)

The value of the function is 0.

@FRAC(x) Fractional part of (x)

@FRAC returns the fractional part of (x)

@FRAC(4.5) = 0.5

@FRAC(A1) = the fractional portion of the contents in cell A1

@FV(pmt,int,n) Future Value

The future value of an annuity can be automatically calculated given: payment per period, interest rate per payment period and n (number of periods). The calculation occurs according to the formula:

$$FV = \text{payment} * \frac{(1 + \text{interest})^n - 1}{\text{interest}}$$

	A		B		C
1	Payment		6000		
2	Interest		0.08		
3	Periods (n)		24		

@FV(6000,.08,24) = 400588.5

@FV(B1,B2,B3) = 400588.5

@HLOOKUP(x,range,compare) Table lookup (Horizontal)

A horizontal lookup table compares the values in the first row of a range with a defined number of additional rows. The comparison values must be in ascending order (no duplications). If an exact match is not found, the closest value that does not exceed (x) will be used. The result is the first value in the comparison range which exceeds the test value (x). ERR results if it is the first cell in the range. The compare argument specifies how many rows below the comparison row to look.

	A		B		C	
1	0.4876		1		1.0987	
2	2.8		3.14		67.9	
3	7.9		8.1		8.2	

@HLOOKUP(1,A1..C4,2) = 8.1

@IF(a,vtrue,vfalse) The value (n) if condition is True

@IF tests for TRUE (non-zero) or FALSE (zero). The value is vtrue or vfalse.

		A		B		C		D		E	
1		3		2		22		72			
2											

@IF(A1>B1,B2/B3,0)

When A1=3 the result is 3.142857

When A1=1 the result is 0.0

@INSTR(string1,string2)

The @INSTR function operates *only* in the database manager search filters. It returns either a true value (a match) or a false value (not a match). Since any field name can replace a string variable, let string1 be the field under test and string2 the search string. (When a field name replaces a string, no quotes surround it. Any string must have quotes surrounding it.) If string2 is within the field named in string1, a match occurs. If string2 is not within the field named in string1, no match occurs. For example:

The database contains a field named *Title*. In the *Title* field, there are records that contain the following titles: Pomp and Circumstance, The Fifth Symphony, Jingle Bells, Mood Indigo, California Girls, Just The Way You Are, I'm In The Mood For Love, My Way, and Way Down Yonder In New Orleans.

If filter 1 is defined as: @INSTR(Titles,"Way")

it will find the records containing: Just The Way You Are, My Way, and Way Down Yonder In New Orleans.

@INT(x) Integer part

@INT returns the integer portion of the value (x).

@INT(3.14) = 3

@INT(A1) = returns the integer portion of the contents in cell A1

@ISERR(x) The value -1 (True) if expression (n) = ERR

The value is -1.0 (TRUE) if (x) = ERR, or 0.0 (FALSE) if (x) equals anything else.

@LN(x) Log base (e)

The natural logarithm of (x). If (x) is negative or zero, the value is ERR.

@LN(1.2) = 0.182321

@LOG(x) Log base 10

Same as above, but returns the logarithm base ten.

@MAX(list) Maximum value of all items in a list

@MAX returns the greatest value from a specified list. If no values are present, the result is ERR, blank cells in a range are ignored.

	I	A		B		C	
1	LIST	ONE					
2		23.567					
3		0.02					
4		24.0					
5		0.987					
6		12.89					

@MAX(A2..A4) = 24.0

Since this is a list function, any number of individual items or range of items can be entered, as long as each is separated by a comma.

@MAX(A1..A3,B5,NAMED-RANGE,E5..E8) is perfectly acceptable.

@MIN(list) Minimum value of all items in a list

@MIN returns the smallest value from a specified list. If no values are present, the result is ERR, blank cells in a range are ignored.

	A	B	C
1	LIST TWO		
2	23.567		
3	0.02		
4	24.0		
5	0.987		
6	12.89		

@MIN(A2..A6) = 0.02

Since this is a list function, any number of individual items or range of items can be entered, as long as each is separated by a comma. For example:

@MIN(A1..A3,B5,NAMED-RANGE,E5..E8) is perfectly acceptable.

@MOD(a,b) (a) mod (b)

The modulus or remainder of (a) divided by (b). According to the calculation:

$a - (b * @INT(a/b))$

@MOD(8,4) = 0.0

@MONTH(date) Month number

@MONTH converts a serial date and extracts the month (See @Date, above).

@MONTH(17844) = 11

@NPV(x,range) Net Present Value

This function yields the present value of a series of future cash flows. The series must be in a single column or row, (x) represents the per period interest rate. The first cash flow is assumed to exist at the end of the first period with subsequent cash flow at the end of the next sequential periods.

Assumed : $V_1 \dots V_n$ are values in range, then:

$$NPV = \sum_{i=1}^n \frac{V_i}{(1+x)^i}$$

IF: **INITIAL** = Single cash flow
 SERIES = Range of future flows
 RATE = per period interest rate

THEN: **INITIAL** + @NPV(RATE,SERIES)

@PI PI (3.141592653589794)

No argument accompanies @PI. @PI = 3.141592653589794

@PMT(prin,int,n) Payment

The payment is calculated for an ordinary annuity if (prin)cipal,

(int)erest rate, and (n)umber of periods, you know according to the following formula:

$$\text{PMT} = \text{principal} * \frac{\text{interest}}{1 - (1 + \text{interest})^{-n}}$$

	A		B		C	
1	Principal				6000	
2	Interest				0.14	
3	Term (n)				12	
4						

@PMT(6000,.14,12) = 1060.015

@PMT(B1,B2,B3) = 1060.015

@PV(pmt,int,term) Present Value

The Present Value of an ordinary annuity is calculated when payment, interest, and term, are known according to the following formula:

$$\text{PV} = \text{payment} * \frac{1 - (1 + \text{interest})^{-n}}{\text{interest}}$$

	A		B		C	
1	Payment				600	
2	Interest				0.14	
3	Term (n)				12	
4						

@PV(600,.14,12) = 3396.175

@PV(B1,B2,B3) = 3396.175

@RAD(x) Degree to Radian conversion

@RAD returns a radius, where (x) = degree.

@RAND(x) Random number (1-0)

The @RAND function takes no argument. It returns a random number between 0.0 and 1.0.

@ROUND(x,ndigits) Round a number

The @ROUND function rounds (x) to the number of digits specified (ndigits). ndigits is converted to an integer and must be between -15 and +15. If zero, (x) is rounded to an integer.

@SIN(x) Sine

The Sine of (x) is returned where (x) is an angle in radians.

@SIN(.3) = 0.29552

@SQRT(x) Square root

The @SQRT function calculates the square root of (x) unless (x) is less than zero; (x) must be a positive number.

@STD(list) Standard Deviation of all items in a list

@STD results in the standard deviation of the values in a list unless there are no items within the list, resulting in ERR. Blank cells are ignored.

@STD(A1...A6) = Standard deviation for specified list

Since this is a list function, any number of individual items or range of items can be entered, as long as each is separated by a comma.

@STD(A1..A3,B5,NAMED-RANGE,E5..E8) is perfectly acceptable.

@SUM(list) Totals the values of all items in a list

The @SUM function results in the sum of cells in a list.

I	A	B C
1	13.09	
2	112.01	
3	2.09	
4	-----	
5	127.19	

@SUM(A1..A3) = 127.19

Since this is a list function, any number of individual items or range of items can be entered, as long as each is separated by a comma. For example:

@SUM(A1..A3,B5,NAMED-RANGE,E5..E8) is perfectly acceptable.

@TAN(x) Tangent

The @TAN function calculates the tangent of (x) when (x) is expressed as an angle in radians.

@TAN(1.2) = 2.572151

@TODAY(date) Today's date

The @TODAY converts today's date to serial format for inclusion in date arithmetic calculations (See @DATE).

@TRUE The value non-zero (-1 = True)

@TRUE takes no argument. Its value is non-zero (-1).

@VAR(list) Variance of all items in a list

The @VAR function calculates the population variance of items in a specified list according to the following formula, where (n) = @COUNT (list) and each (x) = a list element.

$$\frac{\sum \left(\frac{x}{n} \right)^2 - \left(\frac{\sum x}{n} \right)^2}{n}$$

@VLOOKUP(x,range,compare) Table Lookup (Vertical)

A vertical lookup table compares the values in the first column of a range with a defined number of additional columns. The comparison values must be in ascending order (no duplications). The result is the first value in the comparison range which exceeds the test value (x). ERR results if it is the first cell in the range. The compare argument specifies how many columns beyond the comparison column to look. (See @HLOOKUP.)

@YEAR(date) Year number

The @YEAR function extracts the calendar year from a serial date.

GLOSSARY

A

Absolute Address -- A cell address specified by particular row and column coordinates. A dollar sign precedes each coordinate of an absolute address. For example, \$A\$1 represents the cell at the intersection of column A and row 1.

AmigaDOS -- The Amiga's Disk Operating System. A term which sometimes encompasses the machine level operating system of the Amiga personal computer, it's file management system, and user interface.

Anchor Cell -- The first cell in a cell range. See Chapter 10B, Entering Cell Ranges with the Point Method.

At Functions -- Built-in functions that do specific calculations on your data. At functions also appear as @functions. See Chapter 24, Mathematical Functions.

B

Backup -- An identical copy of a diskette. Use the backup copies for running your software.

Baud -- In telecommunications, the length of the shortest signalling condition or event divided into one second.

Bit -- A binary digit. The smallest unit of computer information from which are built bytes and words. A two-state (on/off; one/zero) representation.

Boot -- Initiate the automatic loading of operating system software into memory.

Borders -- The spreadsheet has 3 types of borders:

- The area containing the lettered columns.
- The area containing the numbered rows.
- The labels you identify using the Print Borders commands. These labels become borders for your printout.

See Chapter 20, Print Borders Commands

Byte -- In the Amiga, a byte is composed of eight bits.

C

Cell -- One unit of worksheet information. A cell exists at the intersection of a column and a row.

Cell Address -- The location of a specific cell. The cell address consists of a column coordinate (a letter or letters) and a row coordinate (a number). For example, A1 or BD156 are cell addresses. The cell address A1 specifies the location at the intersection of column A and row 1.

Cell Pointer -- The reverse video bar that shows the cell you are using. To change the location of the cell pointer, use the arrow keys, or the mouse. You can also change the location of the cell pointer by using the F5 function key. See GOTO key.

Cell Range -- Two or more adjacent cells.

Column -- The vertical division of a document. The vertical element of a cell address. Columns are identified by a letter or letters in a spreadsheet.

Command -- An action you tell a program to perform. You can issue a command by using the menus, function keys or keyboard commands.

Command Menu -- The command menu appears across the top of the screen when you press and hold the right mouse button.

Coordinate -- A column or a row. In the cell address A1, A is the vertical coordinate, and 1 is the horizontal coordinate.

Coordinate Address -- The combination of a vertical column (a letter), and a horizontal row (a number). See Cell Address.

Copy -- The act of making a duplicate of a disk, file or program. The command that allows you to make a duplicate of a cell or range of cells, a word or group of words.

Current Worksheet -- The worksheet on your screen. The worksheet name appears in the status display area if you loaded the present worksheet with the File Requester.

Cursor -- The red block that appears in the Input Areas. When you next type characters with the keyboard, the characters appears at the cursor position.

D

Database -- In data management, a single group of related records.

Data Entry -- The labels, values, and formulas that you enter into the worksheet. Also, the act of entering labels, values, and formulas into the worksheet.

Data Entry Area -- The area in which the red cursor appears in a spreadsheet. When you enter information in a cell, the entry appears in the Data Entry Area.

Default -- A value supplied by the system instead of the operator.

Destination Range -- The range you want to copy or move cells or formulas TO:.

Directory -- An input prompt in the File Requester. Used to access another drive or directory.

Disk or Diskette -- The media on which you store your data. These 3.5-inch diskettes are also called microdisks.

Disk Drive -- The part of your Amiga computer that you put your disks into. Normally this is the internal disk drive (DF0:). You may also have an external disk drive (DF1:) or a fixed or hard drive (DH0:). The disk drive can read data from a disk or write data to a disk.

DOS -- This is an abbreviation for Disk Operating System. Amiga and WORKS! PLATINUM EDITION use Amiga DOS.

Dot Extension -- (see Filespec)

E

Edit -- The act of modifying a document.

Edit (key) -- To modify a cells contents. Press the F2 key to enter the edit mode.

Edit Mode -- The edit mode lets you edit the contents of a cell. To enter the edit mode press the F2 function key. The status indicator in the upper right corner of the screen changes from READY to EDIT.

Erase -- A command on the Range menu. Use this command to erase a cell or a range of cells. You cannot retrieve data that has been erased.

Error Message -- The word Error! that appears when you make a mistake entering data into a cell. The Error! message continues to appear until you correct the entry or erase the cell.

Execution -- The performance of a task. This term is sometimes used to describe the act of performing a program instruction.

F

Field -- In data management, the smallest unit of information. It is a unit of data such as a name or a telephone number.

File -- An organized collection of data considered a unit of information for storage purposes. The worksheets, documents, and databases (among other data) are saved in files on disks or in RAM.

Filespec or Filename -- Each project has a filename as long as 20 characters. The last several characters of a filename can be a period (a dot) followed by a 3 or 4 letter mnemonic - an extension. Some common extensions are:

.DOC	DOCument	.SHT	spreadSHeeT
.TXT	TeXT	.FMT	ForMaT
.SCP	SCriPt	.TRM	TeRMinal

Footers -- characters at the bottom of each page of a printout. One of the most common footers is the page number.

Format -- The way you choose to have your data appear. The spreadsheet lets you use several formats such as Currency, Percent, and Scientific notation.

Formulas -- Mathematical instructions inserted into a spreadsheet cell to calculate your data or into a derived field in a database form.

Function keys -- Function keys provide several different actions. The following lists the function key assignments:

KEY-FUNCTION

Database Manager:

No function key assignments.

Spreadsheet:

F1-Help Menu

F2-Switch to and from the edit mode.

F3-Displays a table of defined range names when you are prompted to enter a range. You can then use the mouse to highlight a range from this list and select it, avoiding typing in the range reference.

F4-Changes the cell references in the current cell from relative to absolute while the worksheet is in the POINT mode. Relative addresses change as they are copied or moved. Absolute references, shown with a dollar sign (\$), do not change.

F5-GOTO key. Go directly to a specific cell.

F6-Zoom window fullsize.

F7-Print worksheet using defined print range.

F8-Saves selected worksheet to disk automatically.

F9-Recalculate the entire worksheet. If your recalc method is automatic, the entire worksheet is recalculated when you make a cell entry.

F10-Display Graphs. Will display up to 4 graphs at one time in either 4 or 8 colors.

Telecommunications:

User definable function keys; PF emulation.

Wordprocessor:

F1-Displays an "help" screen that lists the various commands and their functions.

F2-Displays a "dot command help" screen that lists the various dot commands that can be used on format lines.

F3-Centers the current line.

F4-The instant save function. This stores the document in memory to the same file displayed on the top title bar next to Project.

F5-If you are using multiple edit windows, pressing this key will bring up the next edit window for your viewing.

F6-Turns on (toggles) the boldface character mode.

F7-Turns on (toggles) the underline character mode.

F8-Turns on (toggles) the italics character mode.

F9-This is the "action" key. It is used at various times by different operations. It functions as a signal to Scribble!.

F10-Opens and closes an "insert block" to accommodate rapid insertion of large text.

G

Global -- The typed commands that affect the entire worksheet. For example, the Protect command is a global command because it protects all cells in the worksheet. The global status can be checked by using the Worksheet Status command.

Global Status -- You can check the status of all global settings by selection the Status command on the Worksheet menu.

GOTO key -- The GOTO key is the F5 function key. When you press the F5 key, this prompt appears:

Enter Address to go to: (Present Address)

Enter the destination cell and press the Return key. The cell pointer moves to the cell you identified.

H

Hardcopy -- Paper printout of a file or transmission.

Hardware -- Mechanical, electrical, electronic, or magnetic devices. The physical components of a system, as opposed to the software, or instructions given to the system. See Software.

Headers -- Information at the top of every page of your printout. A common header is a title or the date.

Home -- The cursor position Line 1, Row 1 in a document. The home cell in a spreadsheet is normally A1. If A1 is used for a title. The home cell is the first active cell.

I

Icons -- The images used by the Amiga to represent programs, files and directories on the Workbench.

Insert -- In wordprocessing, the mode in which a character is placed at the cursor location and causes the characters to its right to shift right. This mode does not destroy existing text.

Input Area -- An input area appears on a requester. To make an entry in the input area you must first select it with the mouse and press the

left mouse button. You can then make an entry using the keyboard. Input areas are a part of requesters that require you to make a keyboard entry. In some instances, the input area is pre-selected by the program and is ready for input. If the cursor is visible the input area is ready for keyboard input.

Input Display -- The spreadsheet input display is in the top left corner of the screen. It is the area directly to the right of the cell pointer address.

J

Justification -- In wordprocessing, the style in which both the left-most and right-most characters are aligned with the left and right margins.

K

K or Kilo -- An abbreviation for Kilobyte, or one thousand bytes. It refers to computer memory and disk storage capacity.

L

Label -- Any entry that starts with a Label Prefix. When you enter a letter in the worksheet, the spreadsheet program enters an apostrophe in front of the letter. The apostrophe is the default label prefix. See Label Prefix Characters, below.

Label Prefix Characters -- The spreadsheet label prefix characters are used to cause a single label to appear in a certain area of the cell. Label prefixes are entered immediately in front of the label you want to effect. If you do not enter a label prefix the default is assigned. The default is the apostrophe, which causes labels to be flush left. The label prefixes are:

Prefix Action

' (Apostrophe)	Left Justified
" (Quotes)	Right Justified
^ (Caret)	Centered
\ (Backslash)	Repeating Label

M

Master Diskette(s) -- The distribution diskette(s), bearing the software manufacturers label that are included in the software package you purchased.

M or Meg -- An abbreviation for Megabyte, or one million bytes. It refers to computer memory and disk storage capacity.

Menu -- A group of command choices that appear when you hold down the right mouse button and in the spreadsheet, when you press the "/" key from the keyboard. Some menu items have keyboard shortcuts. See the Reference section of this manual for the appropriate key combinations.

Mode -- A method of operation. For example, the spreadsheet enters the edit mode when you press the F2 function key.

Modem -- Modulator Demodulator. An electronic device that converts computer data into a form that can be transmitted on a telephone network.

Mouse -- The device you use to move the arrow shaped pointer around the screen. The mouse is also used to select menu options.

Mouse Pointer -- The arrow shape that you manipulate with the mouse.

N

Named Range -- A range of cells that have been assigned a name using the Create command on the Range Name menu.

O

Options -- The choices available to you and the various actions available in the command menus.

Optional Comments -- You are prompted for optional comments when you save a project to disk. If you do not want to make comments select the "OK" gadget with the mouse or press Return without inputting any data.

Overwrite -- In wordprocessing, the mode in which a character is placed at the cursor location, replacing the character which was at that location. This mode destroys the existing text.

P

Parity -- In telecommunications, a data bit used for error detection.

Peripheral -- Any device connected to the computer and dependent on the computer for its operational instructions, such as a printer.

Program Disk -- The disk containing a program.

Prompt -- A request for information from a program that normally ask you to enter information.

Q

Quit Command -- Quits the program and exits to Workbench or CLI. To exit, select Quit on the Project menu or select the close window gadget in the upper left-hand corner of the title bar.

R

RAM -- Random Access Memory. A computer's non-permanent storage space.

Range -- A cell or group of cells in the worksheet. When prompted to enter a range, you have three options:

- Enter the range from the keyboard.
- Use the arrow keys to expand the cell range to include the cells you wish to define.
- Use the mouse to drag the highlighted portion until it expands to include the range you wish to enter.

Record -- In data management, a single group of related fields.

Relative Address -- An address specified in relation to an absolute address. A relative address changes depending upon its location in the worksheet.

Repeating Label -- Repeating characters are caused by typing a backslash (\) in front of the character that you want repeated.

Requester -- Requesters appear when a program needs keyboard input.

Reset -- Reset options are available on the Worksheet, Range, Print, Graph and Sort menus.

Resume -- This command appears on various requesters. Normally Resume returns you to the current project and executes the changes you made.

ROM -- Read Only Memory. The permanent storage space in a computer.

✓ **Row** -- The horizontal division of a document. The horizontal element of a cell address. Rows are identified by a numbered coordinate in a spreadsheet.

S

Screen -- The displayed window of the project.

Scrolling -- Moving the view of the window to display different portions of the project.

Sizing Device -- The sizing device is located in the lower right hand corner of a window. Drag the sizing device to change the amount of screen area you can view at one time.

Software -- Instructions to a computer; also called programs, code, and routines. See Hardware.

✓ **Source Range** -- The cell or group of cells that you are copying or moving information FROM.

Status Bar -- The bar located at the top of the screen that displays the project name. When the right mouse button is pressed the status bar shows the command menus. The status bar is also called the Status Display or Title Bar.

Status Display -- See Status Bar, above.

Status Indicator -- The spreadsheet status indicator is located in the top right corner of your screen. The wordprocessor status indicator is located on the bottom row of your screen

T

✓ **Telecommunications** -- The process of communications between two computers using a telephone network.

Titles -- Labels used to identify information in rows or columns. Titles can be frozen in place using the Worksheet Titles command.

Tutorial -- A hands-on, guided tour of a program.

U

Unprotecting Entries -- To unprotect a cell or range of cells, select Worksheet Protect Disable. This is necessary when you have protected a worksheet using the Worksheet Protect Enable command, and want to make changes to your worksheet.

V

Value -- Any number or formula entered in the worksheet.

W

Window -- That part of the screen that displays your project.

Word -- In telecommunications, the number of data bits transmitted at one time during asynchronous communications.

Wordprocessing -- The manipulation of text by a computer. It postpones the printing of the document until all revision have been made and facilitates the reprinting of documents.

Word wrap -- In wordprocessing, the automatic movement of a word which cannot be printed on the current line, to the following line.

Worksheet -- The microcomputer's version of the accountant's ledger book. The worksheet is made up of a screen divided into a grid consisting of numbered rows and lettered columns.

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NOTES

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- Clipboard Compatible

TELECOMMUNICATIONS MODULE

- **VT 52, 100, 102 and Tektronics 4010 Emulations**
- 8 Colors (IBM/ANSI Compatible)
- Speedy Screen Updates
- 300-19,200 Baud
- 20 User Programmable Macro-Keys
- **Scripts for Unattended Operations**
- Complete Auto and Redial Capabilities
- **40 number Telephone Directory**
- Chat Mode
- **WX, X, Y, Zmodem, Kermit, Compuserve B and SADIE™ (simultaneous file transfer/chat) Protocols**
- Clipboard Compatible

DATABASE MODULE

- Flat File Database
- **Extensive Mathematical Functions**
- 4.2 Billion Possible Records
- 128 Fields
- **Compatible with dBase III® File Structures**
- Clipboard Compatible

SPREADSHEET MODULE

- The Fastest Amiga Spreadsheet
- **68881 Coprocessor Support**
- **Ability to Import/Export Lotus™ 1-2-3 .wks files**
- **8 Graph Types in 8 Vibrant Colors**
- **Complete Macro Language**
- Graphs Hotlinked to Spreadsheet
- **Bold**, Underline, or *Italics*
- Over 40 Built-in Functions
- Clipboard Compatible

SIDEWAYS PRINTING UTILITY

- **An Excellent Companion for Spreadsheet Printouts**
- Rotate IFF Graphics or ASCII Files 90°
- **Rapid Sideways Printing**
- Monospaced Font Support
- Performs Automatic Cut and Paste for Unlimited Columns

OVERVIEW

- 512k Required
- **All Programs Use a Common Interface to Simplify Learning**
- Five Easy to Use Fully Integrated Programs
- One User Friendly Manual
- **Free Technical Support for Registered Users**
- 3 Non-Copy Protected Diskettes
- Cut, Copy, and Paste Between All Modules by Simply Clicking the Mouse
- **True Integration from Micro-Systems Software's Expert Development Team**